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Resource
Bulletin **NC-107**

Wisconsin's Fourth Forest Inventory, 1983

John S. Spencer, Jr., W. Brad Smith, Jerold T. Hahn, and Gerhard K. Raile

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PROCUREMENT SECTION

Several computing errors were found in some of the previous Resource Bulletins reporting the results of the 1983 Wisconsin inventory.The errors were not large, but they affected a number of published tables.In many cases, subtotals and totals were correct, but cells within the table were not.

This publication contains correct tables, and replaces Resource Bulletins NC-94 and NC-97—*Wisconsin Forest Statistics, 1983* and *Wisconsin's Fourth Forest Inventory:Area.*

The five 1983 Wisconsin Forest Survey Unit Reports, Resource Bulletins NC-73, NC-78, NC-84, NC-86, and NC-87, each contain several tables with errors. Revised tables are available upon request, or some tables are duplicated in this report with corrections made. Following are table numbers and titles of the affected tables:

Table 23.—Net volume of timber on commercial forest land by class of timber and softwoods and hardwoods

Table 51.—Growing-stock average annual removals on commercial forest land by species group and county

Table 52.—Sawtimber average annual removals on commercial forest land by species group and county

Table 64.—All live tree biomass on commercial forest land by species group and forest type (in green tons)

Table 65.—All live tree biomass by species group and tree biomass component (in green tons).

For the Northeast Survey Unit only (Resource Bulletin NC-78), the following tables contain column titles that are reversed:

Table 17.—Area of noncommercial forest land by ownership class

Table 18.—Area of noncommercial forest land by forest type.

For the Southwest Survey Unit only (Resource Bulletin NC-87), the following table contains errors:

Table 1.— Area of land by land class (1983)

Table 2.— Area of land by land use class and county (Lafayette County)

Table 26.—Net volume of growing stock on commercial forest land by species group and county.

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Manuscript approved for publication April 7, 1988
1988

Information contained in this report includes the most commonly used Forest Inventory and Analysis (FIA) statistics.However, additional forest resource data can be provided to interested users. Persons requesting additional information that can be provided from the raw inventory data are expected to pay for the retrieval costs. These costs will vary depending on the complexity of the request, from less than $100 for a relatively simple request to $2,000 for a complete retrieval involving the services of a FIA computer programmer. If requests for data conflict with ongoing work, requests will be scheduled so as to minimize the impact on the work unit.

Requests for unpublished information may be directed to:

Project Leader
Forest Inventory and Analysis Project
North Central Forest Experiment Station
1992 Folwell Avenue
St. Paul, Minnesota 55108
Phone: (612) 649-5140

Area served: Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin.

FOREWORD

Forest Inventory and Analysis (FIA) is a continuing endeavor as mandated by the Forest and Rangeland Renewable Resources Planning Act of 1974, which was preceded by the McSweeney-NcNary Forest Research Act of 1928. The objective of FIA is to periodically inventory the Nation's forest land to determine its extent, condition, and volume of timber, growth, and depletions. Up-to-date resource information is essential to frame intelligent forest policies and programs. USDA Forest Service regional experiment stations are responsible for conducting these inventories and publishing summary reports for individual States. The North Central Forest Experiment Station is responsible for Forest Inventory and Analysis work done in Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, South Dakota, and Wisconsin.

Fieldwork for the 1983 Wisconsin forest inventory was begun in the summer of 1981 and completed in late 1983. Reports on the three previous surveys of Wisconsin's timber resource are dated 1936, 1956, and 1968. Resource Bulletins reporting statistical highlights and detailed tables of the five Survey Units in Wisconsin are available.

More accurate survey information was obtained during the 1983 survey than otherwise would have been feasible because of intensified field sampling. Such sampling was made possible by additional funding and field personnel provided the North Central Station by the Wisconsin State Legislature through the Department of Natural Resources. Data from the Department's canvass of all primary wood-using plants in the State were used to help estimate the quantity of timber products harvested in Wisconsin.

Aerial photos used in the Wisconsin Forest Inventory were furnished by the Wisconsin Department of Natural Resources, the USDA Agricultural Stabilization and Conservation Service, and the national forests.

The following State organizations and personnel were instrumental in the preparation of this manuscript:

Wisconsin Department of Natural Resources
- Richard Lindberg, Forest Management Planning and Analysis
- Jim Whipple, Marketing and Utilization
- Art Doll, Recreation Policy and Procedures
- Frank Haberland, Forest Wildlife
- Lee Kernen, Fisheries
- Ron Nicotera, Endangered Resources
- Gordon Reinke, Mining
- David Weizenicker, Parks and Recreation

Wisconsin Department of Development:
- Roger Nacker, Economic Development

University of Wisconsin System:
- Ron Geise, Forestry Education
- Jeff Stier, Extension Forestry

HIGHLIGHTS

Volume

- Volume of growing stock on timberland increased from 11.2 to 15.5 billion cubic feet from 1968 to 1983, a 39-percent gain.
- Softwood growing-stock volume increased 44 percent between inventories; hardwood volume gained 37 percent.
- The Northwest Survey Unit contains 34 percent of the State's growing-stock total; the Northeast Unit contains 29 percent.
- Rough, rotten, and short-log cull trees, as well as salvable dead trees, account for 2.7 billion cubic feet in addition to the 15.5 billion cubic feet of growing-stock volume.
- The aspens lead all species with 2.6 billion cubic feet, or 17 percent of total growing-stock volume.
- Seventy-two percent of the total growing-stock volume is in trees 12 inches d.b.h. or smaller.
- Nonindustrial private parties own 64 percent of the growing-stock volume.
- Average volume per acre of growing stock in 1983 was 1,050 cubic feet, compared to 768 cubic feet in 1968.
- Stands aged 41 to 60 years account for 37 percent of the growing-stock volume.
- Eighty percent of the sawtimber volume is in log grades 3 and 4. Their small average diameter automatically places many sawtimber trees into these grades.

Stand Conditions

- Net annual growth on timberland increased from 419 to 491 million cubic feet between 1967 and 1982—a 17-percent gain.
- The growing-stock growth rate in 1982 was 3.2 percent of inventory—the softwood rate was 3.9 percent and the hardwood rate was 2.9 percent.
- Growing-stock mortality in 1982 was 137 million cubic feet—0.9 percent of inventory.

Timber Use

- Timber removals from growing stock increased from 233 to 285 million cubic feet between surveys.
- Removals from sawtimber increased from 650 to 826 million board feet from 1967 to 1982.
- The aspens led other species in volume of removals—34 percent of total.
- Roundwood products accounted for 87 percent of growing-stock removals, "other" removals accounted for 7 percent, and logging residue accounted for 6 percent.
- Pulpwood (139 million cubic feet) and saw logs (79 million) account for most of the removals from growing stock for roundwood products.
- Seventy-seven percent of the growing-stock removals came from private land.

Biomass

- Live tree biomass (trees greater than 1 inch d.b.h.) totaled 961 million green tons (an average of 65 tons per acre) in 1983.
- Highest per acre yields of live tree biomass (green weight) were in the maple-birch forest type (78 tons), the oak-hickory forest type (74 tons), the white pine type (73 tons), the white spruce type (72 tons), and the paper birch type (71 tons).
- Live shrub biomass (including trees less than 1 inch d.b.h.) was highest in the tamarack forest type—8,085 pounds per acre (green weight) in 1983.

Projections

- The low removals option projection shows growing-stock inventory growing from 15.5 to 21.3 billion cubic feet from 1983 to 2013—a 38-percent gain.
- The high removals option projection shows inventory climbing from 15.5 billion cubic feet in 1983 to 19.0 billion in 2008, then dipping to 18.9 billion in 2013. By 2013, removals exceed growth by 48 million cubic feet.

Area

- Forest land increased from 14.9 to 15.4 million acres between 1968 and 1983.
- Timberland area climbed from 14.5 to 14.8 million acres during the same 15-year period, a gain of nearly 2 percent.
- Greatest proportional gain of timberland was in the Southwest Inventory Unit (31 percent), primarily from the reversion of wooded pasture.
- Reserved timberland area increased from 34,200 to 260,900 acres between surveys, a sevenfold increase.
- Ninety-four percent of the land area classified as timberland in 1968 was still timberland in 1983.
- Wind, fire, insects, and other natural causes have damaged more than 566,000 acres of timberland since 1964.

- Nonindustrial private parties own 64 percent of the total timberland area.
- Nearly all of the timberland owned by nonindustrial private parties is in tracts larger than 20 acres.
- More than one-half of the nonindustrial private forest land has been owned by the same party for at least 10 years.
- Wisconsin ranks second only to Minnesota in total acres of timberland in county and municipal ownership—2.2 million acres.
- The aspen forest type continues to lose acreage with a decline of more than 400,000 acres since 1968.
- Poletimber stands account for 49 percent of the timberland in the northern two units, while sawtimber stands comprise 42 percent of timberland in the south.
- Forest plantations totaled 622,300 acres in 1983, 58 percent in stands less than 30 years old.
- Average site index is 64 feet, compared to a Lake States average of 60 feet.
- Eighty-two percent of the timberland is medium-stocked or better with trees.
- Fifty percent of the timberland is within one-fourth mile of a maintained road.

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WISCONSIN'S FOURTH FOREST INVENTORY, 1983

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W. Brad Smith,
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Wisconsin's forests loom large in importance to its citizens. They provide jobs and raw material for wood-using industries, a quiet haven for recreationists, a home for wildlife, and a mantle to protect soil and store water. Between 1968 and 1983, the area of forest land and timberland (see Definition of Terms in Appendix) both increased slightly, reversing former trends in the State and throughout the Lake States[1].

GROWING-STOCK VOLUME INCREASED 39 PERCENT

Although the area of timberland only increased 2 percent between inventories, from 14.5 to 14.8 million acres, the volume of growing stock on that land gained 39 percent, from 11.2[2] to 15.5 billion cubic feet since the last inventory. Volumes have increased in each of the three preceding inventories, beginning with the first (1935) survey, just as they have in the other Lake States (U.S. Department of Agriculture 1938, Stone and Thorne 1961, Spencer and Thorne 1972). These rising volumes stem from the continuing maturation of stands that were stump fields or smoldering expanses of blackened snags and ashes at the turn of the century. In the ensuing years wave after wave of trees grew from seedling-size to sapling- and poletimber-size on their way to sawtimber-size. In 1968 sawtimber stands represented only 21 percent of the timberland, compared to 32 percent in 1983. Likewise, in 1968 the growing-stock volume in sawtimber trees was 40 percent of the total, but in 1983 it had increased to 46 percent.

Softwood volume increased 44 percent between surveys, compared to a gain of 37 percent for hardwoods as shown below:

Species	Growing-stock volume 1968	1983
	(Million cubic feet)	
Softwoods	2,519	3,638
Hardwoods	8,649	11,860
All species	11,168	15,498

Northern Wisconsin supports almost two-thirds of the State's growing-stock volume. The Northwest Survey Unit (fig. 1) contains 34 percent of the State total, and the Northeast Survey Unit contains 29 percent (table 1).

Bayfield County contains the largest volume of growing stock among Wisconsin's counties, with 856 million cubic feet, followed by Marinette (669 million), Ashland (651 million), Sawyer (651 million), and Forest (649 million).

Sawtimber volume totaled 35.0 billion board feet[3] in 1983, 9.9 billion in softwoods and 25.1 billion in hardwoods.

Counties with the largest sawtimber volumes are Bayfield (1,542 million board feet), Forest (1,507 million), Menominee (1,486 million), Sawyer (1,331 million), and Ashland (1,329 million).

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[1] *Minnesota, Wisconsin, and Michigan.*

[2] *1968 volumes have been adjusted from those published after the 1968 inventory to conform to 1983 volumes because of changes in survey definitions and procedures.*

[3] *International ½-inch rule.*

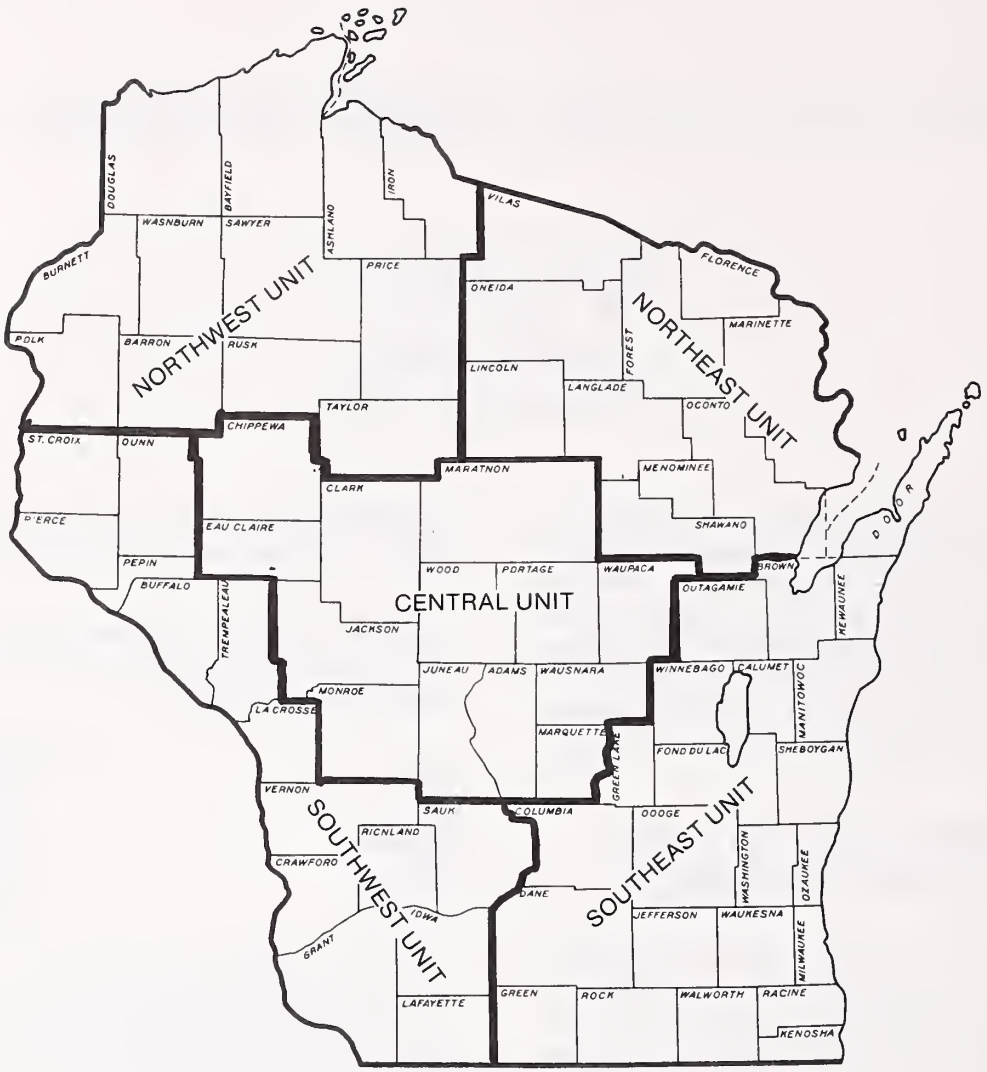

Figure 1. — *Wisconsin Survey Units.*

Table 1.--Net volume of growing stock on timberland in 1968 and 1983 by Forest Survey Unit and change since 1968, Wisconsin

Forest survey unit	Growing-stock volume 1968	1983	Change since 1968
	(Million cubic feet)		(Percent)
Northeast	3,626	4,474	+23
Northwest	3,898	5,311	+36
Central	1,740	2,869	+65
Southwest	1,240	1,936	+56
Southeast	664	908	+37
All species	11,168	15,498	+39

Table 2.--Net volume of timber on timberland by class of timber and softwoods and hardwoods, Wisconsin, 1983
(In million cubic feet)

Class of timber	All species	Softwoods	Hardwoods
Growing stock			
Poletimber	8,445	1,686	6,759
Sawtimber	7,053	1,952	5,101
Total growing stock	15,498	3,638	11,860
Rough and rotten cull	1,828	165	1,663
Short-log cull	421	35	386
Salvable dead	456	80	376
All classes	18,203	3,918	14,285

18.2 BILLION CUBIC FEET IN ALL TREES

If all classes of trees are considered, including cull and salvable dead trees, the total volume is 18.2 billion cubic feet, compared to the growing-stock volume of 15.5 billion (table 2). The proportion of rough and rotten cull volume to the total volume is 10.0 percent in Wisconsin, higher than either Michigan (5.7 percent) or Minnesota (9.3 percent). This suggests an opportunity to increase yields without affecting growing-stock levels by harvesting more rough and rotten trees.

The aspens account for 2.6 billion cubic feet, more than any other species. The aspens, with 17 percent of the total growing-stock volume, are followed by hard maple (10 percent), select red oaks (9 percent), soft maple (8 percent), and paper birch (7 percent).

The ranking of the first three species did not change between inventories; but soft maple, which ranked sixth in 1968, displaced paper birch and elm to move into fourth position in 1983. The soft maple resource (primarily red maple) has also been expanding in Michigan and throughout much of the Northeast. Tolerant of shade and fast-growing, red maple will probably make up an even larger component of growing-stock volume in future inventories.

The growing-stock volume of nearly every species increased between surveys. The only exceptions were elm, which dropped 38 percent in volume, largely because of the continuing effects of Dutch elm disease, and hemlock and yellow birch, whose volumes declined much more modestly. Among the species with the greatest volumes, the aspens gained 21 percent in volume between surveys, hard maple 49 percent, select red oak 42 percent, soft maple 79 percent, and paper birch 45 percent. Red pine increased 211 percent. The species that made the greatest proportional increases between 1968 and 1983 were some with the smallest volumes—eastern redcedar jumped 1,016 percent, black walnut 205 percent, hackberry 151 percent, white spruce 144 percent, "other" hickories 143 percent, and black cherry 137 percent.

NEARLY THREE-FOURTHS OF VOLUME IN SMALL TREES

Seventy-two percent of Wisconsin's growing-stock volume is in trees that are 12 inches in diameter at breast height (d.b.h.) or smaller (fig. 2). This compares with 72 percent in Michigan and 79 percent in Minnesota. A slightly higher proportion of this volume in Wisconsin is in softwood trees (75 percent) than in hardwood trees (71 percent). The preponderance of softwood plantations, and the substantial volumes in some typically small softwood species such as jack pine and balsam fir, are probably the reasons for the difference. Several softwoods, though, notably white pine and hemlock, contain the bulk of their volumes in trees larger than 12 inches.

Softwood growing-stock volume is scattered more widely among forest types than hardwood volume. Thirty-six percent of softwood volume is in hardwood types, compared with only 3 percent of hardwood volume in softwood types. Among softwood species,

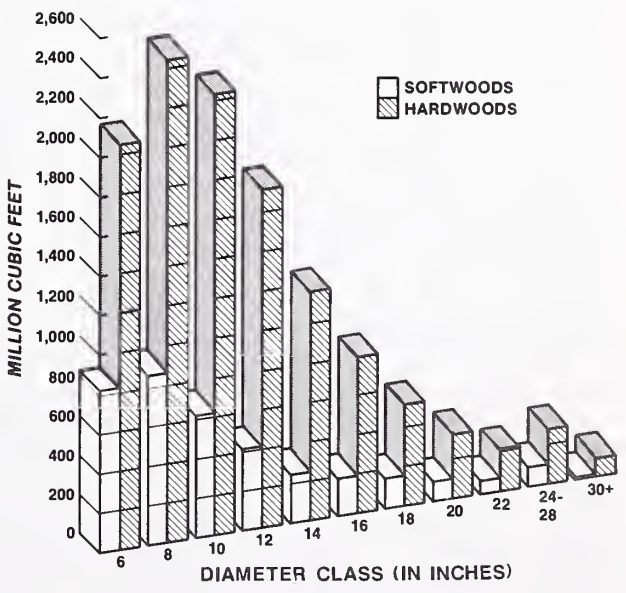

Figure 2. — *Net volume of growing stock on timberland by softwoods and hardwoods and diameter class, Wisconsin, 1983.*

82 percent of the hemlock volume is in the maple-birch forest type, 23 percent of the white pine volume is in the maple-birch type, and 20 percent and 18 percent of the balsam fir volume are in the maple-birch and aspen types, respectively.

PRIVATE OWNERS ACCOUNT FOR MOST VOLUME

Miscellaneous private parties own 5.7 billion cubic feet or 36 percent of the growing-stock volume (fig. 3). Farmers own another 3.7 billion cubic feet, 24 percent of the total. Indian lands account for 0.6 billion cubic feet, 4 percent of the total. Together, these nonindustrial private parties account for 64 percent of the State's volume. (Nonindustrial private parties own 64 percent of the State's timberland area—miscellaneous private parties, 38 percent, farmers, 24 percent, and Indian, 2 percent.)

Counties and municipalities own 2.1 billion cubic feet (13 percent of the total), the national forests administer 1.5 billion cubic feet (10 percent), and forest industry owns 1.2 billion cubic feet (8 percent). The remaining 5 percent is State- and miscellaneous federal-owned. The proportion of growing-stock volume owned by forest industry has diminished from 11 percent in 1968 to 8 percent in 1983. Forest industry-owned sawtimber shrank even more—from 14 to 8 percent between 1968 and 1983. This occurred during the period when area of timberland owned by forest industry declined 16 percent, largely because Menominee Tribal land was classed as forest industry land in 1968, but as Indian land in 1983.

Public owners control a disproportionate share of the softwood growing-stock volume—36 percent, versus 28 percent of the total volume. Public ownership is greatest in the north, where the largest volume of softwoods is located. Conversely, private parties own 75 percent of the State's hardwood volume, but 72 percent of the total. Private ownership is most pronounced in the south, predominantly in hardwoods.

Average volume per acre of growing stock is 1,050 cubic feet (13.3 cords), compared to 1,092 cubic feet in Michigan and 836 cubic feet in Minnesota. In 1968 the Wisconsin average was 768 cubic feet per acre (9.7 cords). The largest average in the State by owner in 1983 was the 1,792 cubic feet per acre on Indian land, followed by national forests (1,245), forest industry (1,072), farmer (1,041), and miscellaneous private parties (1,017). Among forest types, the white pine type leads in average volume per acre of growing stock with 1,636 cubic feet per acre, followed by white spruce (1,600), red pine (1,509), maple-birch (1,262), and northern white-cedar (1,245).

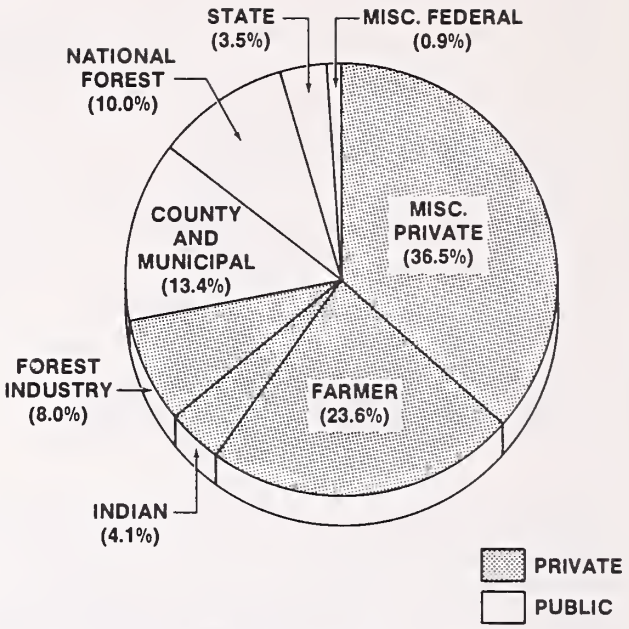

Figure 3. — *Percent of net volume of growing stock on timberland by owner class, Wisconsin, 1983.*

STANDS AGED 41 TO 60 YEARS CONTAIN LARGEST VOLUME

Net growing-stock volume by 10-year age classes peaks at the 41- to 50- and 51- to 60-year classes, then falls off (fig. 4). Stands 41 to 60 years old became established between 1923 and 1942, a period of high

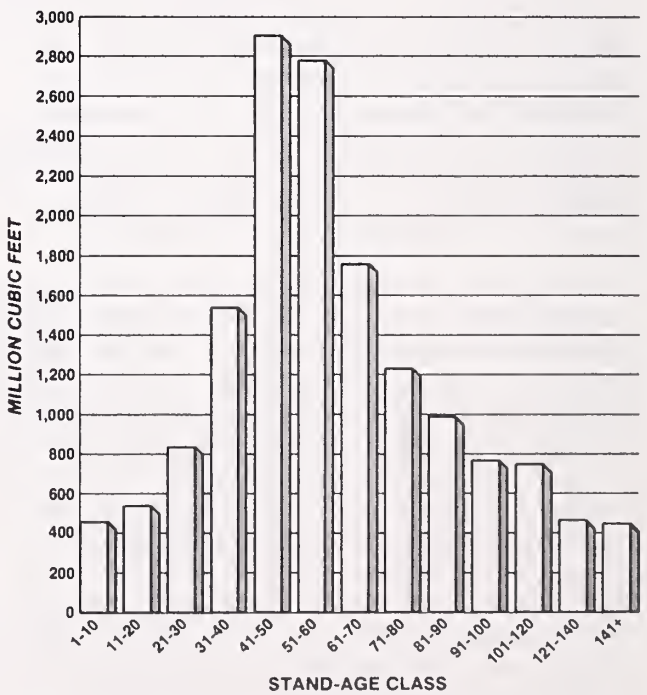

Figure 4. — *Net volume of growing stock on timberland by stand-age class, Wisconsin, 1983.*

activity in timber management in the State and throughout the Lake States. (Minnesota and Michigan both exhibit the same bulge in volume in the 41- to 60-year age classes). The volume in these two age classes, which together represent 37 percent of the growing-stock total, corresponds to the abundance of timberland supporting stands aged 41 to 60. The area of such stands amounts to 30 percent of the total timberland area.

A somewhat higher proportion of hardwood volume (16 percent) is in old growth stands (aged 90 years and over) than of softwood volume (13 percent). Long-lived species associated with the maple-birch, oak-hickory, white pine, and northern white-cedar types account for much of this old growth volume.

Thirty-three percent of the State's volume is in the maple-birch forest type, compared with 27 percent of the timberland area. This type also shows the same increase in the 41- to 60-year age classes shown in figure 4. More of the volume in the maple-birch type is in old growth stands (22 percent) than the hardwood average (16 percent) because of the longevity of the type—extending beyond 120 years.

The oak-hickory type accounts for 19 percent of the State's growing-stock volume. It, too, shows the largest volumes in the 41- to 60-year classes, but also exhibits nearly as large volumes in each succeeding age class to 120 years.

The aspen forest type contains the third largest volume in the State (18 percent). Aspen is a short-lived species. On low sites (site index 50 and less) aspen is harvested at about age 35 if managed for fiber production; and on high sites (site index 70+) it is harvested at about age 60 if managed for sawtimber (Perala 1977). Stands older than about 60 years, then, are considered overmature and tend to decay quickly, with resulting loss of usable fiber. Stands on poor sites are considered overmature even earlier than 60 years. A total of 370 million cubic feet of growing stock in the aspen type (13 percent of the aspen total) is in stands more than 60 years old, and is in various stages of "break up." Clearcutting is the accepted silvicultural prescription for aspen stands, and large areas need to be harvested each year to bring about the ideal situation of equal areas in each stand-age class and no stands over rotation age.

SAWTIMBER QUALITY

Eighty percent of the sawtimber volume is in log grades 3 and 4, poorest of the four log grades used during the inventory (log grades are discussed in more detail in the Appendix). Fifteen percent of the volume is in log grade 2, and the remaining 5 percent is in grade 1. Significant differences, however, occur between softwoods and hardwoods and by diameter class (fig. 5). Compared to softwood volume, a higher proportion of hardwood sawtimber volume is in log grades 1 and 2, and a higher proportion of hardwood volume in log grades 1 and 2 is in diameter classes smaller than 20 inches.

For example, 24 percent of the hardwood volume is in grades 1 and 2, contrasted with only 11 percent of softwood volume. Sixty-seven percent of hardwood volume in grades 1 and 2 is in trees 12 to 18 inches in diameter (ash and basswood butt logs must meet smaller minimum diameter specifications than other hardwood species to be grade 1), but only 51 percent of softwood volume in the same grades is in trees 10 to 18 inches in diameter. (The difference in the beginning diameters is due to the difference in size of sawtimber trees for softwoods and hardwoods. See Definition of Terms in Appendix.)

The largest volumes by far, however, are in the smallest diameter classes of log grades 3 and 4 for both softwoods and hardwoods. Much of this volume

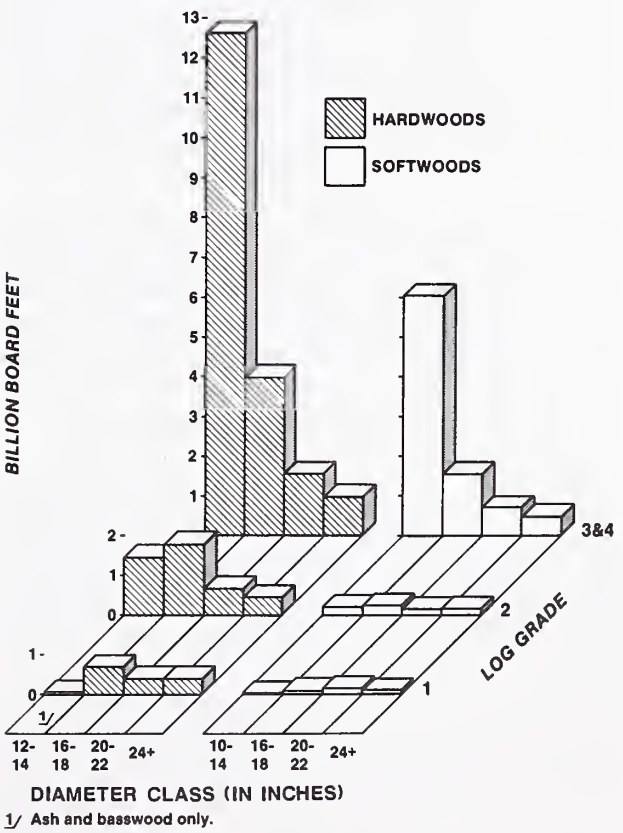

Figure 5. — *Net volume of sawtimber on timberland by log grade, diameter class of sawtimber tree, and softwoods and hardwoods, Wisconsin, 1983.*

is from trees with diameters too small to meet the specifications for grades 1 or 2. The large volume in Wisconsin in small diameter trees—38 percent of the sawtimber volume is in trees in the 10- and 12-inch diameter classes—assures that much of this volume will be classed as log grades 3 or 4.

Yellow birch and elm both produce the highest percentage of sawtimber volume in log grades 1 and 2 (34 percent), followed by basswood (33 percent), hard maple (31 percent), select red oak (30 percent), balsam poplar (30 percent), white and green ash (27 percent), white pine (25 percent), butternut (25 percent), and beech (25 percent).

NET GROWTH UP

The volume of net annual growth on timberland increased from 419 million cubic feet in 1967 to 491 million cubic feet in 1982—a gain of 17 percent. Softwood growth increased faster between surveys (24 percent) than hardwood growth (14 percent).

The 1982 growth rate is 3.2 percent of inventory, compared to a 1967 rate of 3.8 percent. The softwood growth rate is 3.9 percent, and the hardwood rate is 2.9 percent. Such declines in growth rate are common in States like Wisconsin where the inventory of growing stock is increasing rapidly. The volume of growth would have to increase inordinately for the growth rate to remain constant under such conditions. Average net annual growth per acre increased 15 percent between surveys (fig. 6).

Although the Northwest Survey Unit accounts for 34 percent of the State's growing-stock volume, it supports 36 percent of the volume of net annual growth. The highest growth rates are in the Central (3.5 percent) and Northwest (3.4 percent) Survey Units, followed by the Northeast (3.1 percent), Southwest (2.6 percent), and the Southeast (2.6 percent).

Growth rates for individual species range from 6.1 percent for eastern redcedar, 5.8 percent for red pine, 5.5 percent for white spruce, and 4.4 percent for black spruce, (most of which have small volumes), to negative 0.1 percent for elm, 1.0 percent for hemlock, and 1.3 percent for yellow birch.

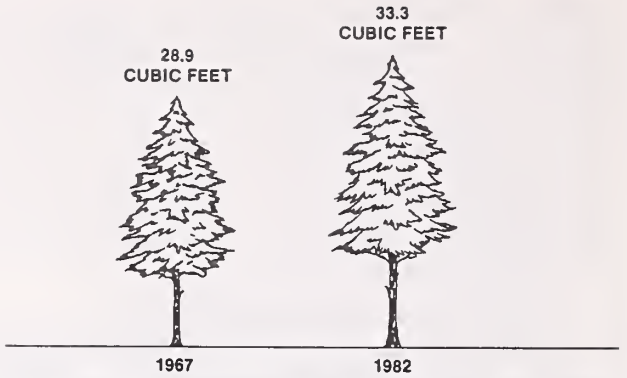

Figure 6. — *Average net annual growth per acre of growing stock on timberland, Wisconsin, 1967 and 1982.*

ESTIMATION OF POTENTIAL GROWTH

Potential net growth (or productive potential) cannot accurately be estimated from information gathered during the most recent inventory. However, we did make a crude estimate of potential growth using site class information. Site class values represent the annual volume of growth per acre of fully stocked natural stands at culmination of mean annual increment. We multiplied the area in each site class by the midpoint of the range of growth in that class to estimate potential growth in the State (table 3). This method yields results that are unrealistically high because most stands in the State are not natural (unmanaged or uncut). Further, it ignores the present distribution of stand age classes and the obvious difference in growth among them. Spurr and Vaux (1976) discounted an estimate of potential growth for the Nation by 10 percent to arrive at a figure they considered realistic. A recent study of the aspen type in Wisconsin provides another clue to the relation between potential and current growth (Lundgren and Hahn 1978). It suggests that potential growth for that type is 52 percent higher than current growth.

Wisconsin's potential net annual growth is estimated to be 991 million cubic feet, or 67 cubic feet per acre (table 3). If this unadjusted potential is discounted by 10 percent, the resulting 892 million

Table 3.--Estimation of potential net annual growth on timberland, Wisconsin, 1982

Site class (Foot³/acre/year)	Area of timberland (Thousand acres)	Potential[1/] net growth per acre (Foot³/acre/year)	Total potential growth (Thousand feet³/year)
224 - 165	6.4	194.5	1,244.8
164 - 120	454.3	142.0	64,510.6
119 - 85	3,265.6	102.0	333,091.2
84 - 50	6,506.0	67.0	435,902.0
49 - 20	4,527.1	34.5	156,185.0
	14,759.4		990,933.6

1/Midpoint of site class interval.

cubic feet, or 60 cubic feet per acre, is a more realistic estimate. Potential growth, then, is estimated to be about 81 percent higher than the current net annual growth of 33 cubic feet per acre.

This potential growth can be driven even higher by widespread application of intensive forest management techniques, such as thinning, planting genetically superior trees, and fertilizing.

DISEASE A BIG CAUSE OF MORTALITY

Growing-stock mortality amounted to 137 million cubic feet in 1982, or 0.9 percent of inventory. The mortality rate compares with recent rates of 1.2 percent in Minnesota and 0.8 percent in Michigan. The hardwood mortality rate (1.0 percent) is substantially higher than the softwood rate (0.6 percent).

Field crews could not identify the primary cause of death of nearly two-thirds of the State's growing-stock mortality volume and, therefore, this volume is included under "unknown and other" causes. Crews must be confident that the cause of death they assign a dead tree is the *primary* agent that caused the tree to die—not a secondary or tertiary invader. This is difficult to do, and is the reason for the large volume of mortality classed as "unknown or other." Of the remaining one-third of mortality volume for which field crews did assign a cause of death, disease was the chief identifiable cause, accounting for 32 million cubic feet or 23 percent of the total. Most of the disease-caused mortality volume is in hardwoods, and more than half is in elm—principally due to Dutch elm disease. Weather killed 12 million cubic feet, and insects killed 2 million cubic feet. The most damaging insect was the spruce budworm, which accounted for most of the balsam fir mortality of 1 million cubic feet. In spite of the depredations of the spruce budworm and other causes of mortality, balsam fir inventory rose between surveys from 440 to 553 million cubic feet. Suppression (0.8 million cubic feet), animals (0.8 million), and fire (0.5 million) are the other causes of tree mortality.

Sawtimber mortality amounted to 252 million board feet in 1982, 0.7 percent of inventory.

TIMBER REMOVALS ON THE INCREASE

Annual timber removals from growing stock in 1982 (285 million cubic feet) were 22 percent higher than removals in 1967 (233 million cubic feet). Softwood removals doubled between surveys, and hardwood removals edged upward 11 percent. The 1982 removals volume for every softwood species was higher than its 1967 volume, but some hardwood species declined. The removals of red pine increased faster than any other species, from 1.8 to 16.5 million cubic feet between surveys.

Sawtimber removals in 1982 (826 million board feet) were 27 percent higher than in 1967 (650 million). Softwood sawtimber removals increased 34 percent over the 1967 levels, and hardwood removals increased 26 percent.

The aspens led all species in volume of growing-stock removals in 1982 with 96 million cubic feet. This amounts to 34 percent of the total removals volume, even though the aspens account for 19 percent of total inventory. Select red oaks made up the second largest removals volume (28 million cubic feet), followed by hard maple (21 million), red pine (17 million), and elm (16 million).

Eighty-seven percent of the growing-stock removals volume (247 million cubic feet) was harvested as roundwood, including pulpwood, saw logs, fuelwood, posts and others. Another 6 percent (16 million cubic feet) was logging residue, unused trees killed by logging or the unused portion of cut trees; and the remaining 7 percent (21 million cubic feet) was other removals, trees removed but not used for products or trees left standing but "removed" from the timberland classification by land use change.

Pulpwood (139 million cubic feet) and saw logs (79 million) are the growing-stock roundwood products most heavily utilized. Removals for fuelwood amounted to 20 million cubic feet in 1982, nearly 3½ times the 1967 fuelwood volume of 6 million cubic feet.

Half of the 1982 sawtimber removals were for saw logs (413 million board feet), one-third of which were from oak species (148 million).

The Northeast Survey Unit accounted for 36 percent of total growing-stock removals, even though it contained only 29 percent of the growing-stock inventory. The Northwest Unit was next, with 33 percent of removals (34 percent of inventory), followed by the Central Unit with 17 percent (19 percent of inventory), the Southwest Unit with 11 percent (12 percent of inventory), and the Southeast Unit with 3 percent (6 percent of inventory).

Private land (including Indian land) contributed 77 percent of the 1982 growing-stock removals volume,

although it contained only 72 percent of the growing-stock inventory. The removals rate on private land averaged 2.0 percent of growing-stock inventory, compared with a rate of 1.5 percent on public land. The highest removals rate among owner classes is the 2.3 percent for forest industry.

Net annual growth exceeds annual timber removals 491 to 285 million cubic feet.

BIOMASS ESTIMATED

As the use of wood fiber increases as a source of energy, as advanced technology permits wood to be used in nontraditional ways, and as we need to know more about wildlife habitat, it becomes more important to know the total volume of trees (including limbs, leaves, and bark) and shrubs. Accordingly, the aboveground green weight (biomass) of live trees and shrubs in Wisconsin was estimated as part of the inventory.

Total biomass of all live trees at least 1 inch in d.b.h. on timberland is 961 million green tons (an average of 65 tons per acre) in 1983. The maple-birch forest type contains the greatest biomass, 314 million green tons (78 tons per acre), followed by the oak-hickory forest type with 213 million tons (74 tons per acre), the aspen type with 173 million tons (53 tons per acre), the elm-ash-soft maple type with 73 million tons (59 tons per acre), and the paper birch type with 46 million tons (71 tons per acre).

The boles of growing-stock trees accounted for 52 percent of total aboveground biomass, and the tops and limbs accounted for 15 percent as shown in the following tabulation:

Biomass component	Weight (Million green tons)	Percent
Growing-stock trees		
Stumps	41.0	4
Boles	498.0	52
Tops and limbs	146.8	15
Cull trees		
Stumps	8.5	1
Boles	99.6	11
Tops and limbs	29.8	3
Live 1- to 5-inch trees	137.1	14
Total	960.8	100

Total shrub biomass is greatest in the tamarack forest type (8,085 pounds per acre), followed by the elm-ash-soft maple type (7,955 pounds per acre), balsam fir type (7,532 pounds per acre), and aspen type (6,792 pounds per acre).

Of the tall shrubs, which include live trees less than 1 inch d.b.h., speckled alder produces the largest average biomass by far (1,361 pounds per acre)[4]. Much of the speckled alder is in the balsam fir, elm-ash-soft maple, and northern white-cedar types. Other tall shrubs that produce large amounts of biomass are hazel (590 pounds per acre), quaking aspen (218 pounds per acre), and black alder (208 pounds per acre).

Among low shrubs, raspberry-blackberry produces the greatest average biomass (151 pounds per acre), followed by bilberry-blueberry (126 pounds per acre), strawberry (26 pounds per acre), gooseberry-currant (18 pounds per acre), and labrador tea (16 pounds per acre). Many of these and other shrubs provide essential wildlife food and habitat.

U.S. TIMBER PROJECTIONS

National consumption of roundwood is projected to increase from 13.3 billion cubic feet in 1976 to 25.2 billion in 2010, an 89-percent gain (USDA Forest Service 1980). Hardwood demand is projected to rise fastest—from 3.0 to 7.5 billion cubic feet during the same period, a 150-percent jump. Softwood demand is projected to gain from 10.3 to 17.7 billion cubic feet, a 72-percent increase. The higher projected hardwood demand reflects expected increased use of hardwood pulp products, flakeboard products, hardwood lumber for pallets and railroad ties, and hardwood plywood and veneer for furniture.

These projections, made at a medium level of population and economic growth, assume that price trends in the base period used in making the projections (roughly from the late 1950's through the mid 1970's) continue through the projection period[5]. When the excess of roundwood imports (4.5 billion cubic feet) over exports (1.5 billion) is subtracted from the projected demand in 2010, the result is the demand on United States forests—22.2 billion cubic feet.

The national volume of roundwood available for harvest (timber supply) is projected to increase from 12.1 to 18.7 billion cubic feet between 1976 and 2010[6]. The above projected demand on the Nation's forests

[4] *A weighted average based on the number of plots sampled in each forest type and the biomass of each species in the type, including types in which the shrub species was not found.*

[5] *Another projection was made assuming that prices will rise enough to maintain an equilibrium between projected demand and supply.*

[6] *This projection indicates the volume of timber available for harvest from domestic forests if recent trends in the forces determining supply, such as area of timberland, level of forest management, and prices, continue through the projection period.*

in 2010 (22.2 billion cubic feet) exceeds supply by 3.5 billion cubic feet. The shortfall for softwoods (3.3 billion) is much larger than that for hardwoods (0.2 billion).

WISCONSIN'S TIMBER PROJECTIONS

To better understand Wisconsin's role in fulfilling the Nation's timber needs, we made two sets of 30-year projections of the State's timber situation. The projections were developed using the Stand and Tree Evaluation and Modeling System (STEMS), a system of computer programs that projects the growth of individual trees in stands (Belcher *et al.* 1982). The programs, using a tree list, "grow" stands of trees by simulating the birth, growth, harvest, and death of individual trees within the stand. Coefficients that drive the programs' diameter growth and mortality functions were developed from more than 2,500 permanent remeasured plots throughout the Lake States.

One projection assumes a continuation of recent levels of timber removals (low removals option), and the other assumes an accelerated level of timber removals (high removals option). Separate projections were made for softwoods and for hardwoods.

The market analyst of the Forest Inventory and Analysis Project estimated total removals for softwoods and hardwoods for each year of the projection period based on 1982 annual removals as a starting point. Next, these total removals volumes were apportioned into species groups on the basis of historic cutting records. These and other data needed by STEMS were input at 10-year intervals. STEMS "grew" each sample plot ahead for 10 years, then determined the forest type of the stand by comparing the basal areas of various combinations of species groups to determine the group with the largest basal area. Next, a management guide was assigned for the particular forest type chosen. Published management guides developed for Lake States conditions were used (Brand 1979, 1981). The program scanned the plot and compared tree and stand data, such as d.b.h., site index, basal area, and stand age, with the management guide to produce a recommended treatment. A marking rule was then developed for each recommended treatment to rank trees on the plot in order of increasing "value", determined by species, d.b.h., and tree quality. On plots where cutting was the recommended treatment, the "least valuable" trees were cut first. Plots were "harvested" and volumes were tallied until the total removals volume was at least 90 percent of the target removals volume mentioned at the beginning of this paragraph.

Assumptions common to both low and high removals option projections are: (1) the total area of timberland will remain nearly constant between 1983 and 2013; (2) the intensity of forest management will continue at the rate indicated by recent trends; (3) the volume of "other" removals will drop during the period as more of these trees are utilized for products; and (4) radial growth will decline in relation to the increase of basal area per acre of trees.

LOW REMOVALS OPTION PROJECTION

The low removals option projection shows timber removals increasing continuously from 285 million cubic feet in 1983 to 365 million in 2013, a gain of 28 percent. Growth remains higher than removals throughout the period, although the volume of growth turns down after the first decade. As a result, inventory builds every year, but at a decreasing rate (fig. 7).

The low option assumes that softwood removals, which account for 21 percent of the 1983 total removals volume, will increase 60 percent during the period, compared to 20 percent for hardwoods. This increase comes about because of the assumed periodic changes shown in table 4.

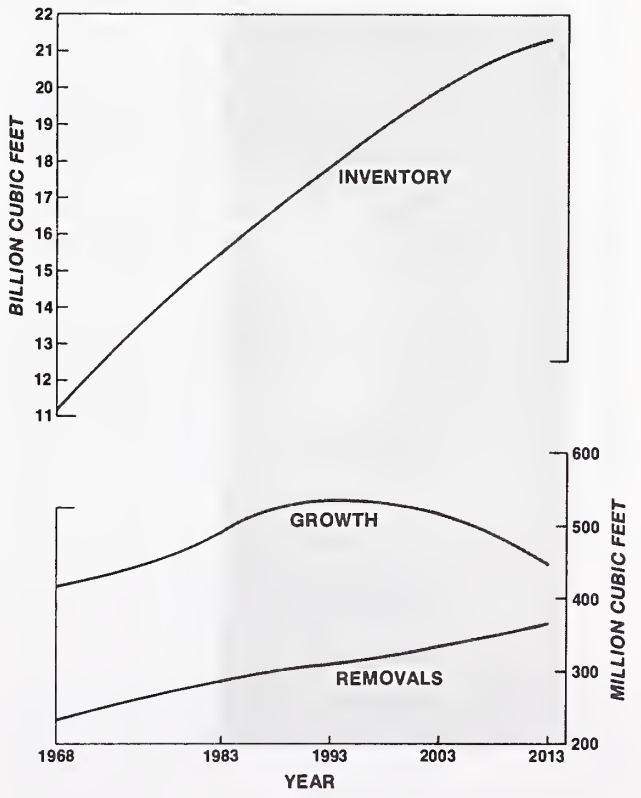

Figure 7. — *Removals, net growth, and inventory of growing stock in Wisconsin, 1968-1983, and low removals option projection for 1984-2013.*

Table 4.--Assumed average annual change of timber removals used in projections of timber resource in Wisconsin, 1983-2013 (In percent annual change)

Period	Low removals option		High removals option	
	Softwoods	Hardwoods	Softwoods	Hardwoods
1983-1987	1.3	0.8	3.3	2.5
1988-1992	1.6	0.7	3.8	2.2
1993-1997	1.4	0.6	3.3	1.8
1998-2002	1.2	0.6	2.6	1.4
2003-2007	1.2	0.5	1.9	0.9
2008-2013	1.2	0.4	1.3	0.5

Growth rises from 491 million cubic feet in 1983 to a peak of 535 million cubic feet about 1995, then declines through the remainder of the projection period to 447 million in 2013. Growth remains higher than removals during the 30 years, although the two converge for the last two decades. Growth exceeds removals in 1983 by 206 million cubic feet, but the excess is projected to shrink by 2013 to 81 million cubic feet.

The 1983 inventory of 15.5 billion cubic feet is projected to rise to 21.3 billion in 2013, a 38-percent increase. The rate of increase slows, however, during the last two decades of the period as growth and removals approach each other. Softwood inventory is projected to increase 69 percent during the 30-year period, compared to 28 percent for hardwoods. Volume in the red pine forest type is projected to increase faster than any other type (102 percent) during the period, followed by the balsam fir (71 percent), tamarack (67 percent), maple-birch (64 percent), and paper birch and white spruce (both 56 percent).

The maple-birch type, which leads all other types in growing-stock volume in 1983 with 5.0 billion cubic feet, is projected to lead other types in 2013 with 8.3 billion cubic feet. The oak-hickory type, which ranks second in 1983 with 3.0 billion cubic feet, is projected to decline to 2.3 billion cubic feet in 2013, moving it to third place behind the aspen type.

Some shifting in the order of volume of removals by species is also projected. Quaking aspen and select red oaks rank 1 and 2, both at the beginning and at the end of the period; but red pine displaces bigtooth aspen for third place by 2013.

HIGH REMOVALS OPTION PROJECTION

Timber removals in this option increase continuously from 285 million cubic feet in 1983 to 493 million in 2013, a 73-percent jump. Growth rises for one decade, then declines, falling below removals at about 2008. Inventory builds at a decreasing rate until 2008, levels off, then declines for the rest of the period (fig. 8).

This option assumes softwood removals will climb 127 percent from 1983 to 2013, compared to 59 percent for hardwoods.

Growth rises from 491 million cubic feet in 1983 to 524 million in 1993, then sags to 446 million in 2013. Growth for both softwoods and hardwoods declines the last two decades of the period. By 2013, removals exceed growth by 48 million cubic feet.

Inventory grows more slowly for the high removals option than for the low option, from 15.5 billion cubic feet in 1983 to 19.0 billion in 2008, then dips to 18.9 billion in 2013. Softwood inventory is projected to increase 46 percent over the period, compared to only 14 percent for hardwood inventory.

The red pine forest type leads all other types in percent of volume gain during the 30-year period—78 percent, followed by the balsam fir (61 percent), paper birch (53 percent), white pine and tamarack (both 49 percent), and maple-birch types (48 percent).

In amount of inventory volume, the maple-birch forest type is projected to lead all others in 2013 (7.5 billion cubic feet) as it does in 1983 (5.0 billion cubic feet). The oak-hickory type is the only forest type projected to decline in volume in this option, slipping from 3.0 billion cubic feet in 1983 (ranked second)

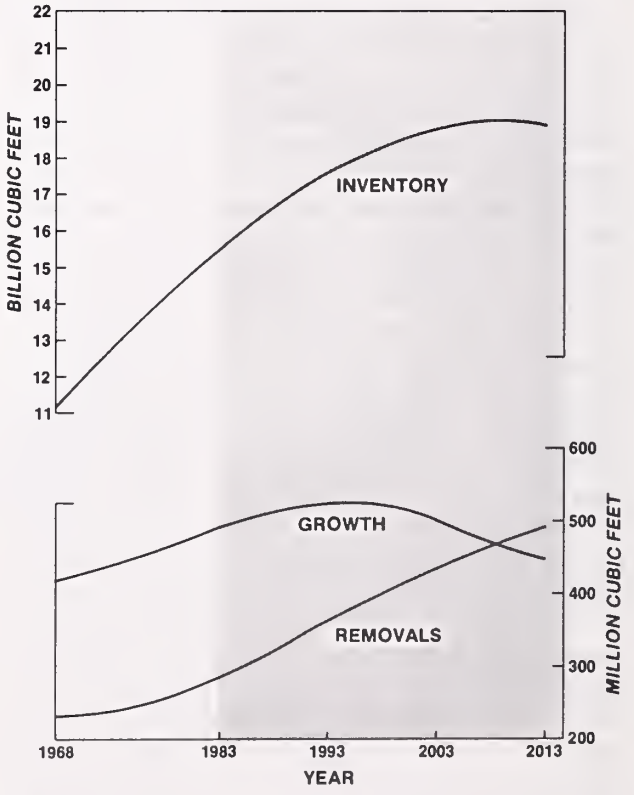

Figure 8. — *Removals, net growth, and inventory of growing stock in Wisconsin, 1968-1983, and high removals option projection for 1984-2013.*

to 1.9 billion cubic feet in 2013 (ranked third). The aspen type is ranked second in 2013 with 3.1 billion cubic feet, up from third place in 1983 with 2.8 billion cubic feet.

THE OUTLOOK

The low and high removals options represent the future forest situation only if the assumptions upon which they are based are realized. As mentioned earlier, the STEMS projections are based on timber management guides that select trees for harvest in a manner that is silviculturally correct. Further, some trees selected may be difficult to market because of species, size, or quality. The projections probably set the high and low bounds of the future forest situation, however. Projections for the first decade are the most meaningful because fast-changing market and economic conditions can rapidly invalidate the assumptions made for projections for the last 20 years.

Growing-stock inventory is likely to continue to build for at least the first two decades, although somewhat more slowly than between 1968 and 1983. If removals reach the level indicated by the high option, inventory will decline beginning about 2008. If forest management intensifies significantly over previous levels, the increased growth could result in larger than projected inventories. Inventories might also be extended through greater utilization of residues, tree tops, and limbs, the volumes of which are not included in growing-stock inventories.

The area of the maple-birch forest type, which was number one in 1983 and grew from 3.5 to 4.0 million acres between 1968 and 1983, is expected to continue to enlarge, although perhaps not as quickly. The area of the aspen forest type, which was number one in 1968 and declined from 3.7 to 3.3 million acres between inventories, is expected to drop further. These two forest types, and the volumes of their associated species, are inextricably linked because much of the maple-birch area gain is a direct result of the aspen type loss. This is true because unharvested mature aspen stands die and the understory species, many of which are associated with the maple-birch type, take over the site. As more aspen stands are brought under management, the aspen type decline may slow or reverse. The STEMS projections, which presuppose a somewhat higher level of management than currently practiced, suggest that quaking aspen growing-stock volume will decline slightly between 1983 and 2013. However, hard maple volume is projected to increase substantially.

The volumes of most species are projected to increase during the 30-year period. Although individual species' projections are not considered reliable, they provide an idea of what might happen if the marking rules discussed earlier are followed. Soft maple and red pine emerge as other species with large volumes that are projected to increase dramatically. Among species projected to decline during the projection period are the oaks, elm, bigtooth aspen, and black walnut. The oaks, particularly, are susceptible to decline because of the high demand for these species from a wide array of wood-using industries both at home and overseas and because of the difficulty of regenerating oak stands either naturally or artificially.

The projected increase for red pine and for other softwoods is welcome news to the State's paper mills, which presently import 80 percent of their annual softwood fiber needs from Minnesota, Michigan, Canada, and the Western States (Lindberg and Hovind 1983).

Nonindustrial private parties own 9.4 million acres of timberland that support 10.0 billion cubic feet of growing stock crucial to the future of Wisconsin's forests. The 370,400 individuals who own this land cite a number of reasons for ownership, but "timber production" ranks seventh out of the 10 most important reasons (Roberts *et al.* 1986). The challenge will be to encourage more nonindustrial private owners to practice sound forest management.

HISTORICAL PERSPECTIVE—EXPLORATION, EXPLOITATION, REVITALIZATION[7]

When explored by Jean Nicolet in 1634, Wisconsin was a vast forest wilderness inhabited by tribes of Indians who depended mainly on hunting, fishing, gathering wild rice, and growing small areas of corn for their livelihood. Forests covered 30 million of the 35 million acres defined by the current State boundaries. In the 200 years that followed Nicolet's first visit, little happened to disturb the vegetation he saw (fig. 9). From the pineries in the north to the oak savannahs in the south, events moved at a glacial pace. The only hints of coming change were the intrusion of fur traders and an occasional missionary.

The traffic in furs opened the first trade routes, but brought only small settlements predominantly along the major waterways. The discovery of lead in the southwestern part of the State in about 1820 brought

[7]*Background material for this portion of the text is based upon a 1956 Department of Natural Resources staff report on the history of forestry in Wisconsin.*

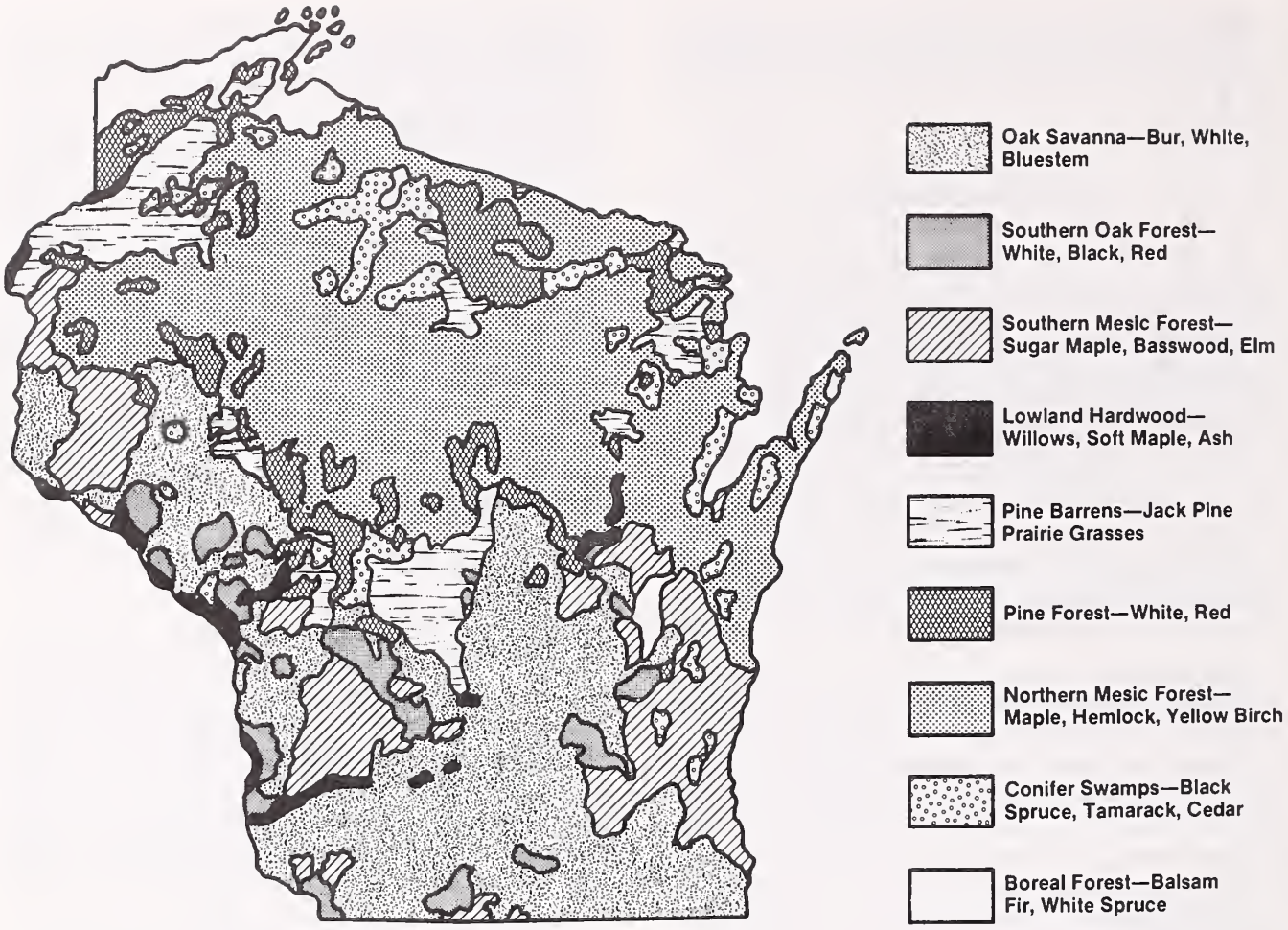

Figure 9. —*Early forest vegetation of Wisconsin.*

many more settlers. Agricultural development followed but did not grow to a large scale until the close of the Blackhawk War in 1832. From then on, a steady stream of immigrants poured into the State. The pioneer farmers found trees an obstacle to clearing the land but a necessity to building their homes, barns, and first crude implements. The major assault on the forests of northern Wisconsin began shortly after the close of the Civil War. By 1870, Wisconsin mills were producing more than a billion board feet of lumber annually, and the demand for wood seemed insatiable. Steam replaced waterpower, and bigger and faster mills with more efficient bandsaws were built. With ample timber for ties, bridges, and fuelwood for the locomotives, logging railroads superceded the sleigh haul and river drive for transporting logs. By 1899, Wisconsin was leading the world in lumber production, sawing 3.5 billion board feet annually. The forests of Wisconsin had not only provided a wealth of lumber to the wood-starved prairies, but built the cities and transportation system of the State as well. The so-called inexhaustable forests, which most said were sufficient to supply the world for 100 years, almost disappeared in half that time (fig. 10).

Indeed, by the turn of the century, the face of the once magnificent Wisconsin forest had changed dramatically, but the bleakest days were yet to come. It was assumed that the plow would follow the ax in northern Wisconsin as it had in the south, but settlement could not keep up with the hell-bent pace of the logging companies and a bustling Nation's demand for more wood. The forest was decimated, and the northern land was a poor substitute for the rich agricultural land farther south.

By 1939, lumber production had dropped to one-tenth of what it had been in 1899. The land was cut over and repeatedly burned over; a staggering amount was tax delinquent. The human despair of the Great Depression was perhaps a fitting culmination of what had happened to the Wisconsin landscape. The future could only be brighter. Out of the Depression came federal work programs such as the Civilian Conservation Corps and the Work Projects Administration that would do much to heal the

Figure 10. — *Deforested pine land in northern Wisconsin. Scattered jack pine reproduction may be seen in the background.*

scarred land and greatly stimulate forestry work in the State.

Sound legislation, stable policies, consistent financial support, progressive leadership, and an enlightened citizenry have all contributed to the resurgence of the State's forests during the last half century. Many individuals, organizations, industries, public agencies, and educational institutions have made important contributions in this development. With few exceptions, as on the Menominee Indian Reservation (fig. 11), Wisconsin's post-settlement forestry practices were not a monument to sound forest management, but today, the people of the State can be proud of their revitalized forests. The information in this report is testimony that the efforts to rebuild and use the forest resources of Wisconsin wisely have been very successful.

FOREST AREA CLIMBS

Forest land, representing 44 percent of Wisconsin's land area, climbed from 14.9 to 15.4 million acres between 1968 and 1983. This 2.7-percent rise averages out to a gain of 27,000 acres per year. This increase is unique at a time when agricultural expansion and urbanization are swallowing up large quantities of forest land in other States. Wisconsin and Kansas are the only two States in the North Central Region to gain forest land in the last 15 years.

Figure 11. — *Old growth white pine on the Menominee Reservation.*

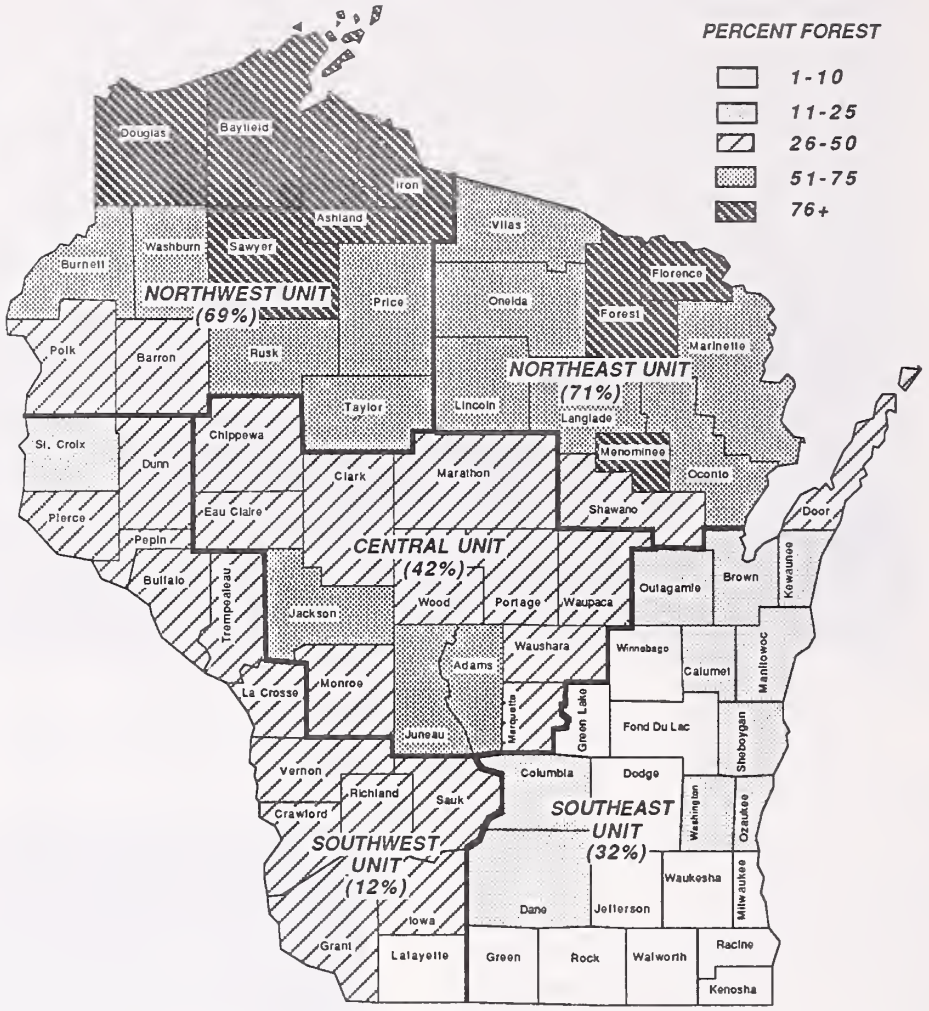

Figure 12. — *Wisconsin Forest Survey Units and percent forest cover by county, 1983.*

The highest concentration of timberland is in the northern two units, where forests grow on 69 percent of the land area compared to 28 percent in the southern three units. The most heavily forested counties, all in the north, are Menominee (93 percent), Ashland (85), Forest (84), Bayfield and Iron (83), and Florence (82). The least heavily forested counties are generally found in the southern units (fig. 12). Most of these lightly forested counties are in parts of Wisconsin where the pre-settlement vegetation was dominated by prairie.

Timberland, which accounts for 96 percent of the total forest land, rose from 14.5 to 14.8 million acres between 1968 and 1983, an increase of 1.5 percent. The average yearly gain was 15,000 acres during the 15 years between surveys. The annual rate of change was (+) 0.1 percent compared to (−) 0.7 percent in Minnesota and (−) 0.5 percent in Michigan according to the most recent inventories of the latter two States.

The change in timberland differed widely by Survey Unit (table 5). The Northeast and Northwest Units jointly showed a 3.5-percent decline in timberland; the Central, Southwest, and Southeast Units jointly showed a 10.6-percent increase. Much of the decline in the north can be attributed to the sharp increase

Table 5.-- Area of timberland, Wisconsin, 1968 and 1983, and percent change between surveys

(In thousand acres)

Survey Unit	1968	1983	Percent change
Northeast Unit	4,062.0	3,828.5	(-) 5.8
Northwest Unit	5,246.4	5,150.8	(-) 1.8
Central Unit	2,831.8	2,950.9	(+) 4.2
Southwest Unit	1,493.1	1,920.0	(+) 28.6
Southeast Unit	903.5	909.2	(+) 0.6
All Units	14,536.8	14,759.4	(+) 1.5

in reserved timberland, and much of the gain in the south stems from the reversion of wooded pasture to timberland because of improved stocking levels on previously grazed land. Thus, to some extent, the increase in timberland in Wisconsin is more the result of a deteriorating farm economy than an influx of young forests. Agricultural statistics reported for Wisconsin for 1982 indicate that the number of cattle and dairy farms have declined almost 20 percent since 1973[8].

WILD AREAS SHOW SIGNIFICANT GAINS

Woodland and reserved timberland area (formerly called noncommercial forest area) jumped from 408,600 to 591,900 acres between 1968 and 1983, a gain of 45 percent. This increase was due to the 663-percent increase of reserved timberland, from 34,200 to 260,900 acres. The new reserved timberland areas, which consist of scattered tracts throughout the State, include Rainbow Lake and Flambeau River Wilderness Areas on the Chequamegon National Forest, Blackjack Springs, Whisker Lake and Headwaters Wilderness Areas on the Nicolet National Forest, the Apostle Islands National Lakeshore in Bayfield County, and the St. Croix Wild and Scenic Riverway corridor.

State-owned reserved areas include wild areas in Buckhorn and Copper Falls State Parks and the St. Croix and Brule State Forests as well as many other smaller parcels set aside since the last inventory, including small tracts purchased or leased by the State for recreation or wildlife management. Most of the larger areas were classed as timberland before they were designated as places where timber harvesting would be precluded. Therefore, they represent much of the reason for the timberland decline in the northern units between surveys.

Woodland, incapable of growing crops of industrial wood because of adverse site conditions, declined between surveys, from 374,100 to 331,000 acres. Much of this change was the result of woodland being included in newly designated reserved areas and being classed as reserved woodland.

MOST FOREST LAND UNCHANGED

The remeasurement of plots established during the 1968 inventory permitted an overview of land use changes on land classified as timberland 15 years ago. Analysis of the plots showed that 94 percent of them remained timberland in 1983. Of the plots that changed land use, one-third were converted to water or marsh, often the result of beaver activity, and one-third were converted to the urban and related classification as shown in the following tabulation:

1983 land use class	Percent of remeasured timberland plots by land use class in 1983
Timberland	94.0
Urban and related	1.9
Water and marsh	1.9
Cropland	.7
Reserved timberland	.8
Woodland	.2
Pasture and range	.5
Total	100.0

The above data refer only to land classified as timberland during the 1968 survey. There have also been additions to the timberland base from land previously classified as woodland or nonforest. The wooded pasture situation in southwest Wisconsin described earlier is one example. Another example is the nonforest land planted to conifer plantations, an estimated 127,000 acres in the State since 1968.

EXTENSIVE ACREAGE SUFFERS DAMAGE

As they remeasure field plots, our survey crews gather information about human-caused disturbance or improvement to the timber stand in the last 20 years. They also record any damage (natural or human-caused) to the stand. The estimate of stand history that results from this information is useful in gauging the condition and utilization of the State's timberland.

Observable damage was recorded on 653,200 acres of timberland. Most of this damage (87 percent) was due to natural causes such as disease (Dutch elm, blister rust, cankers, etc.), wind, fire (natural, accidental, or arson), and insects (budworms, borers, etc.). Although most forest fires are caused by human activity, they are classed as natural damage because less than 10 percent are deliberately set and the field crew does not attempt to determine those. Blowdowns are also a normal occurrence in Wisconsin forests. The major "downburst" of July 4, 1977, in northern Wisconsin and Minnesota that claimed more than 40,000 acres of forest land was a severe example of a routine natural event in the State's forest history. Thirteen percent (86,700 acres) of the observed

[8] *Source: 1982 Wisconsin Agricultural Statistics, Wisconsin Department of Agriculture, Trade, and Consumer Protection.*

Table 6.--Area of timberland by treatment class or damage and ownership class, Wisconsin, 1968-1983

(In thousand acres)

Treatment or damage class	Ownership class							
	All owners	Federal	State	County and municipal	Indian	Forest industry	Farmer	Misc. private
No disturbance	11,825.1	1,095.7	455.6	1,747.8	293.1	846.8	2,760.4	4,625.7
Timber stand improvement	135.3	40.9	6.2	9.0	3.6	14.4	18.6	42.6
Harvest								
Clearcut	470.6	74.3	28.3	152.4	8.8	86.8	27.3	92.7
Partial cut	1,232.2	100.4	23.4	171.5	27.0	130.6	343.2	436.1
Damage								
Natural	566.5	66.5	37.9	72.2	21.2	51.2	140.6	176.9
Man caused	86.7	1.9	6.0	6.2	--	5.3	36.0	31.3
Artificial regeneration of forest land	66.4	21.6	7.6	10.8	--	13.4	2.2	10.8
Artificial regeneration of nonforest land	60.2	10.3	--	1.8	--	5.2	7.1	35.8
Natural regeneration of nonforest land	316.4	6.9	4.4	8.1	--	2.3	178.3	116.4
All treatments	14,759.4	1,418.5	569.4	2,179.8	353.7	1,156.0	3,513.7	5,568.3

damage was the result of human activities such as spraying, draining, or flooding. This latter group of activities is generally the result of deliberate changes in land use management.

Between 1964 and 1983, 80 percent of the timberland (11.8 million acres) was undisturbed by man and suffered no major damage (table 6). The changes that did occur in this area were the result of natural processes.

Since 1964, 1.7 million acres have been harvested, 12 percent of the timberland area. Partial cutting was observed on 72 percent of the harvested area, and clearcutting accounted for the remaining 28 percent. Although forest industry and county land make up only 8 and 15 percent of the timberland, respectively, this land accounted for 13 and 19 percent of the acres harvested by all owners. Federal and State lands had harvesting activity roughly proportional to their share of the timberland base. Nonindustrial private owners were the only group to have less than their proportional share of harvesting activity.

The next most extensive treatment was timber stand improvement, performed on 0.1 million acres, 1 percent of the total timberland area. This work (mostly thinnings) was done fairly equally on both public and private forest land.

Tree planting occurred on 126,600 acres, 1 percent of the total area. About one-half of the tree planting was done on land that was nonforest during the last 20 years. Again, public and private land received the benefits of this treatment equally.

MOST TIMBERLAND IN NONINDUSTRIAL PRIVATE OWNERSHIP

Private parties (other than farmers) own the largest share of the State's timberland, 5.9 million acres or 40 percent of the total. When combined with the 3.5 million acres owned by farmers (24 percent of the total), the resulting 9.4 million acres of nonindustrial private-owned timberland represents more than half of Wisconsin's total (fig. 13). Nonindustrial private owners are a diverse group of people with contrasting

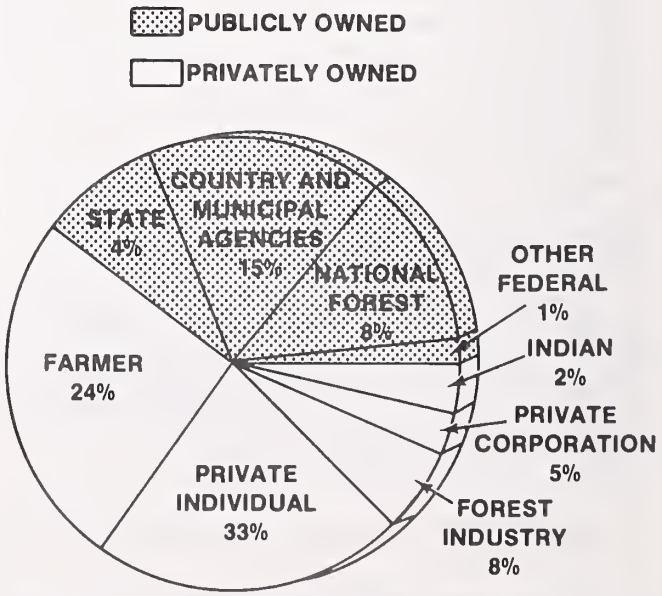

Figure 13. — *Area of timberland by ownership class, Wisconsin, 1983.*.

backgrounds, goals, and management strategies. The fact that this group owns 64 percent of the timberland and accounts for 58 percent of the acreage of management activity in the last 20 years certainly indicates that Wisconsin's private landowners are aware of forest management opportunities.

Nonindustrial private parties own similar acreages in the combined northern two units (4.6 million acres) and in the south (4.9 million acres). There is a sharp contrast, however, in how these areas compare to total forest land in their respective regions. Nonindustrial private owners control 84 percent of the timberland in the southern units, compared to only 51 percent in the north.

Fifty-nine percent of the nonindustrial private forest land, excluding Indian land[9] is owned by parties with at least 50 acres of timberland. Another 28 percent is owned by parties with 21 to 50 acres as shown in the following tabulation. These areas represent the total area owned by an individual, and may include one or more noncontiguous tracts.

Size of holding	Area owned by nonindustrial private parties	
(Acres)	(Thousand acres)	(Cumulative percent)
5,001 +	119.0	1
2,501-5,000	49.7	2
501-2,500	333.9	6
101-500	2,569.0	34
51-100	2,265.2	59
21-50	2,565.3	87
11-20	683.9	95
5-10	316.0	98
1-4	180.0	100
Total	9,082.0	

More than half of the nonindustrial private forest land has been owned by the same party for 10 years or more:

Owner tenure	Area owned by nonindustrial private parties	
(Acres)	(Thousand acres)	(Cumulative percent)
20 -	2,333.4	26
10-19	2,731.3	56
5-9	1,976.7	78
1-4	2,040.6	100
Total	9,082.0	

[9]*Indian land is not included in the discussion of owner tenure and size of holding, because these data were not collected for Indian land.*

COUNTY AND LOCAL GOVERNMENTS OWN 15 PERCENT OF TIMBERLAND

Wisconsin's county and local governments own 2.2 million acres of timberland, half of which is in the Northwest Unit. The Forest Crop Law (replaced by the Managed Forest Law enacted in 1985) and the County Forest Reserve Law, both enacted in the late 1920's, allowed for the establishment of county forests to deal with the critical problem of tax delinquent, cutover, and burned land. Nearly 90 percent of the county forest acreage in the State was acquired between 1930 and 1933. The largest county forest is in Douglas County (226,000 acres), and the smallest is in Monroe County (about 7,000 acres). Wisconsin ranks second only to Minnesota in total acres of timberland in county ownership.

The Nicolet and Chequamegon National Forests, established in 1928 and 1933, respectively, comprise 1.2 million acres (8 percent) of timberland and owe much of their beginnings to the same conditions that gave birth to the county forests. All the national forest land is in the two northern Survey Units. State forests comprise 0.6 million acres (4 percent). Wisconsin has the lowest acreage of State-owned forest land in the Lake States; Minnesota has 2.7 million acres, and Michigan has 3.6 million acres of timberland in State ownership.

Industry also holds 1.2 million acres of timberland; 88 percent of this land is in the northern units. Practically all (93 percent) forest industry land is owned by companies with holdings of more than 5,000 acres. Fifty-three percent of forest industry land has been held by the same owner for at least 20 years. Another 29 percent has been held for at least 10 years.

The remaining 0.5 million acres of timberland are in miscellaneous federal agency and Indian ownership (accounting for 1 and 2 percent, respectively).

MAPLE-BIRCH AND OAK-HICKORY TYPES GAIN REGIONALLY

Maple-birch stands are increasing their dominance in Wisconsin's forests. The 4.0 million acres in the maple-birch forest type in 1983 represents 27 percent of the timberland, compared to the 3.5 million acres in 1968 comprising 24 percent of the total. The maple-birch type is most extensive in the northern two units where it amounts to nearly one-third of the region's timberland area. This increase is expected to continue

as older aspen and birch stands mature and succeed to northern hardwoods. In the southern units, 2.3 million acres of oak-hickory represent the dominant forest type, accounting for 40 percent of timberland area in that region—a 14-percent increase since 1968.

Twice as many forest types gained area between surveys as did types that lost area (table 7). The largest area increase was the 475,300 acres gained by the maple-birch type, but the greatest proportional increase was the 54-percent jump made by the red pine type. Other large area gains occurred in oak-hickory (193,800 acres) and paper birch (87,200 acres). The largest area loss was the 403,100-acre decline registered by the aspen type. However, the 57-percent reduction in nonstocked area between surveys was the highest proportional loss. Other large losses were in the jack pine type (181,100 acres) and balsam fir (133,400 acres).

A few examples will help explain how to use table 7. If you wish to know what became of the 727,600 acres of jack pine found during the 1968 survey, simply read across the jack pine row in table 7 and observe that 433,400 acres are still jack pine, 41,000 acres are now typed red pine, 126,900 acres are typed oak-hickory, 70,000 acres are now aspen type, 5,900 acres are nonstocked, and 50,400 acres are no longer timberland. To determine the source of the current jack pine acreage, read down the jack pine column. This shows that 433,400 acres of jack pine have been retained in the type, 8,900 acres of the current jack pine acreage came from the red pine type, 5,400 acres came from the tamarack type, 33,400 acres came from the aspen type, 65,400 acres came from land that was not classified as timberland in 1968, and the current total acreage of jack pine type is 546,500 acres. The change recorded for jack pine was a decline from 727,600 acres to 546,500 acres.

ASPEN ACREAGE CONTINUES TO DECLINE

The second largest forest type Statewide is aspen with 3.3 million acres or 22 percent of the total timberland area. Unlike the maple-birch type, the aspen type declined in area between inventories—from 3.7 million acres acres in 1968. Aspen is a pioneer species, and stands that are predominantly aspen live about 40 to 60 years before beginning to deteriorate and to be replaced by a new stand, not always aspen. Therefore, aspen stands older than 60 years are prime candidates for conversion to other types, especially those with understories that are not aspen. In Wisconsin, 268,300 acres of the aspen type (8 percent of the type area) are more than 60 years old.

Much of the gain of the maple-birch type from 1968 to 1983 came at the expense of the aspen type as mature aspen stands gave way to their more tolerant understories, some of which were made up of species associated with the maple-birch type.

More than one-fourth of the aspen type (860,700 acres) also supports a natural coniferous understory. If these stands are not managed to favor aspen in the future, some of them will convert to a conifer type, primarily balsam fir. Clearcutting aspen tends to bring about pure aspen stands on the same site. As more aspen stands are harvested, the steady decline of area in the aspen type may slow and reverse. The large acreage in stands aged 1 to 20 years (1.1 million acres) suggests that this process may have begun.

Survey year	Area of aspen type (Thousand acres)
1936[10]	5,117
1956[10]	4,161
1968	3,665
1983	3,262

The aspen type is most widespread in the two northern Survey Units where it comprises 28 percent of the forest area.

POLETIMBER AND SAWTIMBER DOMINATE REGIONALLY

The distribution of timber by stand-size class is not uniform throughout the State. In the northern two units 4.4 million acres (49 percent) of the stands are poletimber, while in the south 2.4 million acres (42 percent) of the stands are sawtimber.

Poletimber stands in Wisconsin account for the largest area by stand-size class—6.2 million acres or 42 percent of the total. This compares to a national average for the proportion of poletimber stands of 38 percent. The Lake States is the only region of the country where sawtimber stands do not predominate. This reflects the continuous rebuilding and maturation of stands from the cutover and burned over conditions in the late 19th and early 20th centuries. It also reflects the domination of pole and small

[10] *Estimated from inventory data for combined aspen-birch type.*

Table 7.-- Forest land classification changes in Wisconsin, 1968-1983

(In thousand acres)

1968 land classification	1968 area[2]	1983 land classification[1]: Timberland - forest type: Jack pine	Red pine	White pine	Balsam fir	White spruce	Black spruce	Northern white-cedar	Tamarack	Oak-hickory	Elm-ash soft maple	Maple-birch	Aspen	Paper birch	Exotic	Non-stocked	Reserved timberland woodland and nonforest land
Timberland																	
Jack pine	727.6	433.4	41.0	--	--	--	--	--	--	126.9	--	--	70.0	--	--	5.9	50.4
Red pine	310.2	8.9	256.5	22.4	--	--	--	--	--	1.3	--	--	13.7	--	--	--	7.4
White pine	177.6	--	7.7	122.5	--	--	--	--	--	7.9	7.6	25.0	--	--	--	--	6.9
Spruce-fir	628.0	--	8.2	--	296.2	34.3	8.8	40.8	--	--	23.8	60.9	113.2	19.4	--	--	22.4
Black spruce	235.9	--	--	5.4	11.7	--	177.0	5.6	17.4	--	5.8	--	--	--	--	--	13.0
Northern white-cedar	302.4	--	--	--	23.1	--	6.3	207.0	--	--	29.5	7.2	--	12.8	--	--	16.5
Tamarack	222.2	5.4	--	--	10.7	7.8	9.4	--	177.4	--	5.5	--	--	--	--	--	6.0
Oak-hickory	2,664.9	--	27.0	--	--	--	--	--	--	1,959.3	25.7	327.7	118.4	24.6	--	--	182.2
Elm-ash-soft maple	1,157.6	--	--	--	13.6	--	--	22.8	--	20.3	699.8	182.5	68.2	21.1	--	8.1	121.2
Maple-birch	3,521.5	--	--	21.5	7.6	--	7.0	11.2	--	158.3	161.6	2,870.7	160.7	14.8	--	--	108.1
Aspen	3,664.6	33.4	49.9	38.1	48.2	--	13.3	--	7.8	123.0	137.3	367.1	2,521.4	102.3	--	25.3	197.5
Paper birch	554.5	--	7.8	--	8.2	--	--	9.0	7.7	33.0	34.1	92.5	59.9	285.4	--	--	16.9
Nonstocked	369.7	--	--	8.3	--	--	--	--	--	103.2	27.5	62.4	17.4	8.3	--	17.2	125.4
Reserved timberland, woodland and non-forest land	20,296.1	65.4	80.1	7.4	0.1	19.3	51.2	74.3	12.4	325.5	82.4	.9	118.6	152.9	2.2	103.9	19,199.5
All land classes	34,832.8	546.5	478.2	225.6	419.4	61.4	273.0	370.7	222.7	2,858.7	1,240.6	3,996.9	3,261.5	641.6	2.2	160.4	20,073.4
Percent net change (1968-1983)		(-24.9)	(+54.2)	(+26.8)	(-23.4)		(+15.7)	(+22.6)	(0.0)	(+7.2)	(+7.2)	(+13.2)	(-11.0)	(+15.7)	(--)	(-56.6)	(-1.0)

[1] Read across rows to determine dispersion of 1968 classes to 1983 classes. Read down columns to determine origin of 1983 classes.

[2] Total land area adjusted to conform to 1980 census figures.

sawtimber material for timber products as the primary objective of management on several million acres of forest land.

Sawtimber stands make up 32 percent of the State's timberland area, more than in the other two Lake States, but substantially less than the national average of 45 percent. In 1968 sawtimber stands represented 21 percent of the State total (fig. 14).

The largest area of sawtimber stands is in the maple-birch and oak-hickory forest types (1.5 million acres each) but the highest proportion within any forest type is 70 percent in the white pine type.

OAK-HICKORY AND JACK PINE ON WIDEST RANGE OF SITES

Although not the most abundant type in Wisconsin, jack pine is one of the most likely forest types to be found across the entire range of physiographic classes. Physiographic class is a measure of soil and water conditions on a site that affect tree growth. The five classes are on a continuum, ranging from exceptionally wet sites (hydric) to very dry sites (xeric). Jack pine, which tends to be a dry site type, was found on 156,500 acres of mesic to hydric sites. This constitutes 29 percent of the total jack pine type found in the recent inventory. Oak-hickory, also generally considered a dry site type, was found on 97,300 acres of hydromesic and hydric sites (3 percent of the total oak-hickory type). Bur oak was the dominant species on the latter sites along with elm and red maple.

The mid-point of the physiographic classes contains sites where conditions are most favorable for growth for most species (mesic). Sixty-five percent of Wisconsin's timberland occupies mesic sites, including 92 percent of the maple-birch type, at least 75 percent of the oak-hickory and paper birch types, and more than 70 percent of the white spruce, aspen, and white pine types.

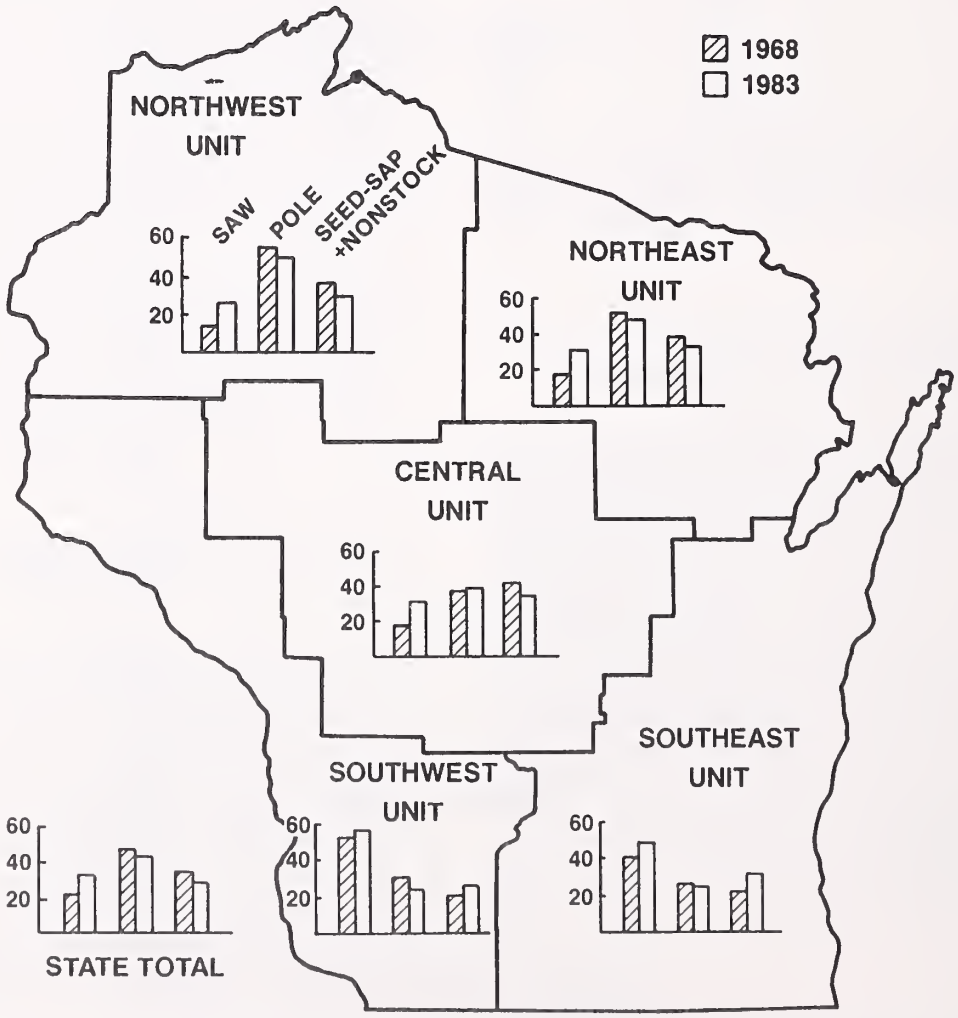

Figure 14. — *Distribution of timberland (in percent) by Survey Unit, survey year, and stand-size class.*

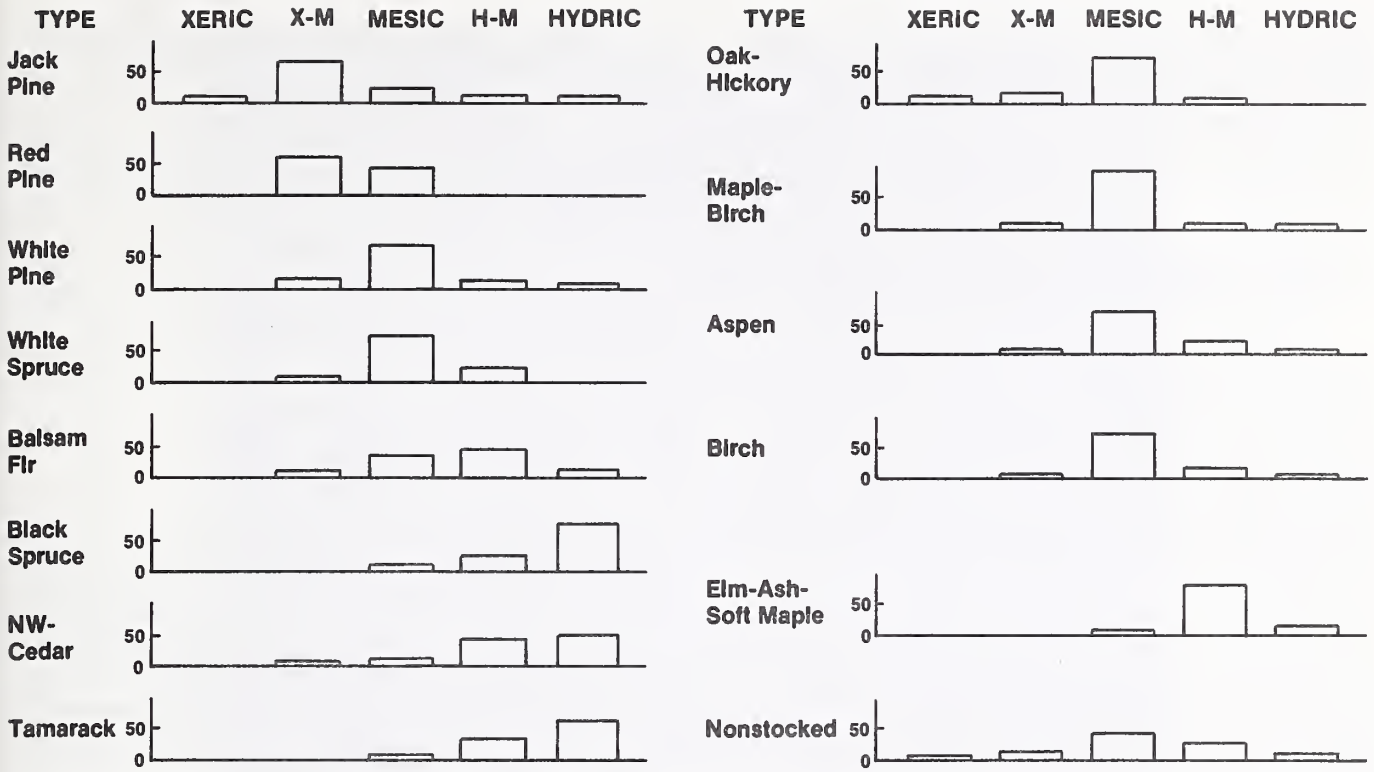

Figure 15. — *Distribution of timberland (in percent) by forest type and physiographic class, Wisconsin, 1983.*

In general, forest types found on drier sites in Wisconsin are jack pine, red pine, oak-hickory, and exotic conifers. Wet site types include black spruce, northern white-cedar, tamarack, and elm-ash-soft maple. Figure 15 shows the distribution of acreage within each forest type by physiographic class.

AVERAGE SITE INDEX IS 64 FEET

Site index provides another perspective of forest site quality by classifying forest land in terms of the height growth made by dominant or codominant trees of selected species at 50 years of age. Eighty-four percent of the State's timberland (12.4 million acres) grows trees taller than 51 feet at age 50, and 11 percent of the total area grows trees taller than 81 feet (fig. 16). Site index values fluctuate by forest type. A site index in the high range for one type may be considered average for another type. If a forest type is converted to another type, the new site index for that site may bear little resemblance to the old one.

The weighted average site index for all types in Wisconsin is 64 feet, compared to the Lake States average[11] of 60 feet. The highest weighted average of any forest type in the State is 70 feet for the aspen

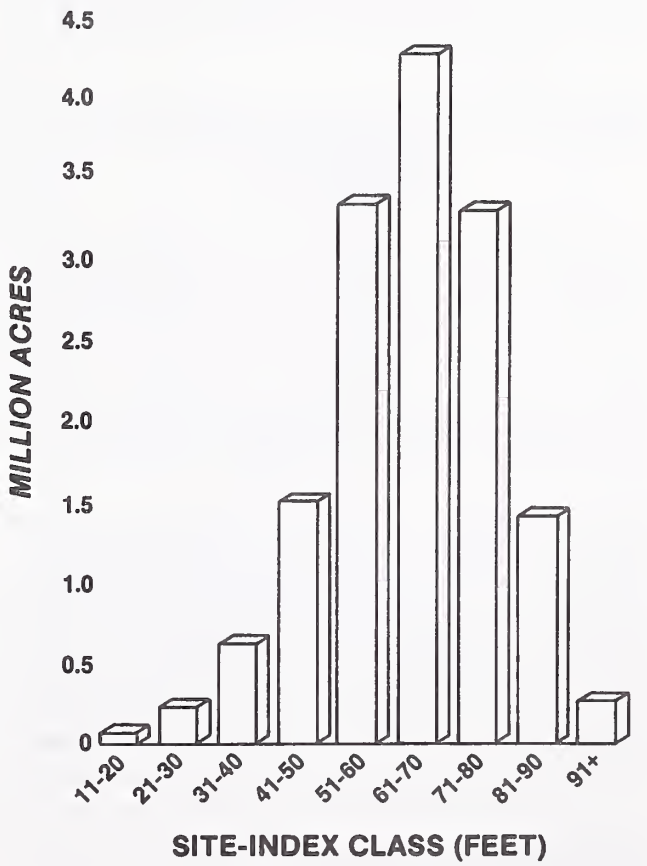

Figure 16. — *Area of timberland by site-index class, Wisconsin, 1983.*

[11]*Based on 1983 data for Wisconsin, 1980 data for Michigan, and 1977 data for Minnesota.*

type, followed by red pine (69 feet), maple-birch (67 feet), paper birch (66 feet), white pine (64 feet), oak-hickory (63 feet), jack pine and white spruce (62 feet), and elm-ash-soft maple (61 feet). The lowest average is 39 feet for the northern white-cedar and black spruce types.

SITE CLASS—ANOTHER WAY OF LOOKING AT SITE QUALITY

Another indicator by which the quality of a forest site can be judged is site class. Site class is a means of describing forest land in terms of its inherent capacity to grow wood based on the culmination of mean annual increment[12] for fully stocked natural stands. Site class values are the cubic feet of growth per acre per year that might be expected if the above conditions are met.

The weighted average site class for Wisconsin is 67 cubic feet of growth per acre per year, compared to the Lake States average of 64. The highest average among types in the State is the 103 cubic feet per acre per year of the red pine type, followed by the balsam fir type (99 cubic feet), white pine (90 cubic feet), white spruce (80 cubic feet), and aspen (79 cubic feet). The most dominant forest type in terms of area, maple-birch, has an average productivity of 65 cubic feet per acre per year.

MOST PLANTATIONS LESS THAN 30 YEARS OLD

Forest plantations were classed into forest types according to intended dominant land use. Therefore, a field plot that fell in a red pine plantation beneath an overstory of species associated with the maple-birch type would be typed red pine if there was clear indication that the plantation was to be the dominant land use. The type assigned to a plantation always corresponds to the species planted.

Forest plantations totaled 622,300 acres in 1983. Fifty-eight percent of the plantations are under 30 years of age, having been planted from 1953 to 1982. This recent surge reflects the State's aggressive forest management policies and partially explains the increase in forest land since the last inventory. Some of the heaviest plantation activity occurred in the Central Unit where more than 65 percent of the plantations are less than 30 years old. Plantation establishment has sharply declined in the last 10 years, however; establishment rates are about half that of the previous two decades.

Plantations are more prominent in the northern Survey Units, but significant acres are found in the south:

Survey Unit	Area of plantations (Thousand acres)	Percent of total
Northeast Unit	162.1	26
Northwest Unit	192.9	31
Central Unit	179.9	29
Southwest Unit	55.9	9
Southeast Unit	31.5	55
All Units	622.3	100

Plantations in the red pine type are the most extensive with 377,900 acres, 61 percent of the total plantation area. Jack pine is the second largest plantation type with 138,500 acres (22 percent of the total), followed by white pine with 55,000 acres (9 percent), white spruce with 40,500 acres (6 percent), and other species and nonstocked with 10,400 acres (2 percent).

STOCKING OF GROWING-STOCK TREES IS GOOD

Eighty-two percent of the timberland (12.1 million acres) is at least 60 percent stocked with growing-stock trees (medium stocking or better). Of this area, 1.3 million acres is overstocked with trees (130 percent stocked or more).

Although these figures indicate that the level of stocking of forests in the State is not a major problem, the seedling-sapling and sawtimber stands are stocked more sparsely than those in the poletimber stand-size class. More than one-fifth of seedling-sapling and sawtimber stands are poorly stocked (16.7 to 59.9 percent stocked), compared to 12 percent of poletimber stands. Many of the sawtimber stands are poorly stocked because of past grazing (fig. 17).

ONE-HALF OF FOREST WITHIN 1/4 MILE OF ROAD

The proximity of stands to maintained roads is an indicator of potential use by humans—whether for timber harvesting, recreation, or other use. In Wisconsin, 50 percent of the timberland is within one-fourth mile of a maintained road (graded at least once a

[12] *Culmination of mean annual increment is the point at which a curve plotting current annual increment crosses a curve plotting mean annual increment.*

Figure 17. — *Oak forest in southern Wisconsin where pasturing has eliminated most reproduction.*

year), and 97 percent of it is within 1 mile of a maintained road:

Distance to road	Area of timberland	
(Miles)	(Thousand acres)	(Cumulative percent)
0 - 1/8	4,035.3	27
1/8 - 1/4	3,276.3	50
1/4 - 1	6,959.2	97
1 - 2 1/2	481.5	100
2 1/2 - 5	7.1	100
Total	14,759.4	

MOST OF FOREST WITHIN 1 MILE OF WATER

The nearness of a forest stand to a body of open water may have an impact on its recreational potential or its operability if a watershed is threatened. Fifty-six percent of the State's timberland is within one-fourth mile of water—a river, stream, lake, farm pond, swamp, or bog. Thirty-nine percent is within one-eighth of a mile of water:

Distance to water	Area of timberland	
(Miles)	(Thousand acres)	(Cumulative percent)
0 - 1/8	5,738.6	39
1/8 - 1/4	2,594.9	56
1/4 - 1	5,209.7	92
1 - 2 1/2	1,011.5	99
2 1/2 - 5	195.4	100
5 - 10	9.3	100
Total	14,759.4	

NONFOREST LAND WITH TREES—AN ADDITIONAL RESOURCE

Besides timberland, reserved timberland, and woodland, trees grow on some nonforest land too—many trees in some cases. To be classed as nonforest land with trees, an area must contain at least one tree per acre that is at least 5 inches in d.b.h. Such areas amount to 1.2 million acres in Wisconsin.

Improved pasture constitutes the largest portion of this area with 322,300 acres, as shown in the following tabulation. In general, nonforest land with trees

offers some opportunities for management and harvest, particularly for fuelwood. However, the small areas involved and the scattered frequency of the trees often impose economic constraints on the harvest of other timber products.

Land Use	Area of nonforest land with trees (Thousand acres)
Improved pasture	322.3
Marsh	312.6
Urban and other	244.3
Wooded pasture	112.1
Idle farmland	110.5
Cropland	54.1
Wooded strips	45.0
Windbreaks	40.8
Total	1,241.7

FOREST-RELATED NONTIMBER RESOURCES[13]

Geology and Soils

The basic underlying geological material in Wisconsin is of precambrian origins. These ancient rocks appear at or near the surface in the northern third of the State and plunge to nearly 3,000 feet below the surface in the south. Much of the mineral wealth of the State is associated with these rocks. After their formation came layers of sedimentary rocks such as dolomite limestone, sandstone, and shale covering the southern two-thirds of the State.

The advancing and receding continental ice sheets or glaciers played the final role in developing most of the topography of current day Wisconsin. The grinding and scouring action of the ice leveled hills and filled valleys, leaving an unsorted mixture of boulders, gravel, sand, silt, and clay materials. As the ice receded, it left many water-formed deposits of outwash and ice-contact drift such as eskers and lacustrine sediments.

Glacial "drift" or "till" covers more than three-fourths of the State, ranging in depth from a few feet to several hundred feet. Only one portion of the State, the southwest corner, was not overcome by the ice sheets. This area is called the "Driftless Area" (lacking glacial drift) and is defined basically by those counties in the Southwest Survey Unit (fig. 12) south of Pepin County. Although the driftless area was not in direct contact with the ice sheet, it was invaded by outwash and covered with windblown loess after glacial activity in surrounding areas. The topography of this region has been completely shaped by the erosive forces of water. Thus water, either as liquid or solid, has been the dominant artisan in sculpting and defining the topography upon which the current flora and fauna of Wisconsin reside.

Minerals

Wisconsin has a variety of metallic and nonmetallic mineral resources that play an important role in the State's economy. Some of the earliest settlements in Wisconsin centered around shallow lead and zinc deposits in the southwestern portion of the State. In fact, this area was the most important lead producing area in the Nation from 1830 to 1871. Other metallic ores found in measurable quantities in Wisconsin include copper and iron. There is currently no metallic mining in progress in the State. The taconite mine in Jackson County and the zinc mine at Shullsburg have recently closed, and the copper-zinc mine in Forest County is only in the developmental stage. These various ore deposits are still substantial, however, and given the right economic circumstances they will again be mined.

Nonmetallic mineral mining includes sand and gravel, crushed stone (dolomite, granite, taprock, sandstone, and quartzite), dimension or building stone (dolomite, granite, sandstone), clay, peat, and natural abrasives (silica sand). This type of mining is generally on the surface, occurs throughout the State, and is tied directly to the construction industry.

Extracting these resources can have serious consequences for the forest if not carefully planned and implemented. Proper land use management, esthetics, and water quality are all valid areas of concern. These, along with many other considerations, are the foundation of the complex regulations that have evolved to ensure that the environment will be protected to the greatest degree possible without putting the public at risk. No known threatened or endangered species have been adversely affected by mining or drilling operations in Wisconsin to date.

Wisconsin legislation requires close supervision by the DNR to ensure protection of the environment and requires environmental impact statements, reclamation plans, mining permits, and public hearings. State and local agencies, as well as private landowners and

[13] *The text on nontimber and related resources is based on information from Wisconsin's Soil, Water, and Related Natural Resources: an appraisal prepared by the Wisconsin State Board of Soil and Water Conservation Districts, February, 1980.*

environmental interest groups, act as "watchdogs" on the entire mine development process. Mining on federal land where the federal government retains the mineral rights also needs federal permits and impact statements filed with the Bureau of Land Management, U.S. Department of the Interior. Chapters NR130, 131, and 132 of the Wisconsin Administrative Code can be referenced for procedures and standards relating to metallic mineral exploration, prospecting, and mining. Wisconsin currently has no comprehensive laws regarding the mining of nonmetallic resources.

Fish and Wildlife

Fishing is a popular pastime in Wisconsin as evidenced by the catch of nearly 116 million fish in 1977. Bass, perch, and panfish were the most abundant catch followed by trout, walleye, northern pike, salmon, and muskellunge. For many reasons, these fish may be thought of as a forest resource. The forest helps provide the high quality silt-free water that is essential to basic fish habitat. By shading streambanks and lakeshores, the forest may help to maintain the low water temperatures essential to fish species such as trout. In 1977, more than 157 million fish were released in Wisconsin lakes, rivers, streams, and adjacent Great Lakes by the Wisconsin DNR. In addition to stocking, the State also provides assistance in fish management to landowners with programs such as the Trout Stream Habitat Management Program, funded by the sale of annual trout stamps.

Water pollution, including sedimentation, industrial wastes, non-point-source pollutants from agricultural land and roads, and possibly acid rain, poses the greatest threat to fish habitat. To date there is little evidence that forest management practices are threatening water quality in the State.

Wildlife species are abundant in Wisconsin and can be generally divided into two broad groups—game and nongame species. Most attention is focused on game animals, but the nongame group is receiving increased consideration. In 1978, concern and awareness of nonconsumptive uses of wildlife prompted the Wisconsin Legislature to begin appropriating general revenues for endangered and nongame species.

Songbirds and raptors are perhaps the best known nongame animals because they are easy to see during the day. Woodpeckers, warblers, wrens, herons, falcons, hawks, and eagles are a few of the hundreds of species enjoyed by birdwatchers throughout the State. Other nongame animals include shrews, moles, mice, rats, and other small nocturnal animals that are rarely seen.

Game animals are those harvested by hunting or trapping. Public involvement in providing quality hunting began in 1927 with acquisition of Horicon Marsh in Dodge County. Today nearly 700,000 acres of State purchased or leased land are available to the public for hunting and fishing. This land, managed by the Wisconsin DNR, consists of nearly 300 separate parcels in 69 counties throughout the State. Emphasis has been placed on acquiring areas in the southern portion of the State where public land is not as plentiful as in the northern counties.

The most widely hunted forest game animals are rabbit, squirrel, ruffed grouse, and whitetail deer. Because of hunting pressures, these species are often the focus of habitat management and research.

The structure and condition of the forest are usually key ingredients in proper management of these species. The success of ruffed grouse, for example, is closely related to the condition of the aspen forests. To flourish, the grouse need three broad age classes of aspen. Broods of ruffed grouse do best in aspen stands less than 10 years old because the dense young trees provide protection from raptors, the primary predator of ruffed grouse. Stands of aspen between 10 and 30 years old are preferred cover for adult birds, and mature stands of aspen are the source of male aspen flowers, which are a primary food source for these game birds.

Whitetail deer are abundant in the forests of Wisconsin; although populations differ from area to area, the overall average for the State is roughly 65 deer per thousand acres of forest land. Much of the success of the deer population in Wisconsin can be attributed to logging pressure created by forest industry. The demand for industrial roundwood, particularly aspen, which is harvested by clearcutting, provides substantial areas of new growth for browse throughout northern Wisconsin. The extensive conifer forests of this region also provide excellent winter cover.

In the southern portion of the State, where mature oak forests generally provide little food and cover, intensive management techniques must be used to preserve viable populations of animals. Much of this activity is focused on land purchased or leased by the State for wildlife purposes.

Other species closely linked with the forest are raccoon, mink, beaver, fox, and bear. Bears, once on their way to extinction in Wisconsin, are now plentiful enough to allow a limited hunting season each year.

The key ingredients in managing diverse wildlife habitats are protection and manipulation. Protection means setting aside and saving certain habitats that are unique, rare, or endangered, and blocks of forest that can be arranged for wildlife. Habitat manipulation is used to provide a variety of habitats within a forested area or between a forested and nonforested area. The amount of interspersion and edge is considered as well as the plant species composition, vertical structure, and the size and type of openings. Important techniques in developing and maintaining diversified habitats are harvesting timber to encourage young desirable vegetation or to enhance vertical structure; planting more desirable tree, shrub, or herbaceous species for browse or cover; installing shallow impoundments to trap water; or conducting other operations that might alter patterns of diversity to meet specific habitat requirements. One simple, but often overlooked, management practice is the retention of snags when harvesting timber. These trees provide excellent nest and p »rch areas for birds as well as small mammals. Although most wildlife species respond favorably to the increased edge provided by traditional timber management activity, some species such as bear need larger areas of continuous forest and are thus area dependent or require a certain amount of old growth forest. For these species, traditional management practices may have to be modified to adequately address habitat needs.

Whether the use of wildlife is consumptive or not, the key to the enjoyment of this resource is accessability. Public land is easily accessible as a rule, as is industry land with some restrictions. Nonindustrial private owners, however, account for 62 percent of the timberland in Wisconsin and fully 84 percent of the forests in the southern part of the State. In collecting information on land access during the Wisconsin inventory, we found that access restrictions were greater (33 percent) in the more populated south than in the north (14 percent). The State has acknowledged this disparity and has concentrated its efforts to provide more wildlife access in the south to ensure opportunities to share and enjoy the wildlife heritage.

Survey Unit	Total area of nonindustrial private timberland[14]	Area of nonindustrial private timberland with restricted access[14]	Percent with restricted access
	--- (Thousand acres) ---		
Northeast Unit	1,695.4	513.8	30
Northwest Unit	2,539.6	507.8	20
Central Unit	2,193.8	858.0	39
Southwest Unit	1,844.5	582.3	32
Southeast Unit	808.7	314.2	39
All Units	9,082.0	2,776.1	31

Outdoor Recreation

Wisconsin's natural resources provide a wide range of quality recreational experiences. The State has 27,000 miles of rivers, 820 miles of shoreline on two Great Lakes, 14,927 inland lakes, 55 State parks, 340 miles of State park trails, 3 State recreation areas, 9 State forests, 28 county forests, and hundreds of municipal parks and forests. Additionally, there are two national forests, a national lakeshore, and numerous miles of Wild and Scenic Riverway corridors.

The State parks provide facilities for intensive recreation along with preservation of the natural resource (fig. 18). Recreation activities include cross-country skiing, skating, camping, swimming, and picnicking. Because of limited forest recreation access, the State forests in the southern part of Wisconsin are managed primarily for recreation. Privately managed recreation and resort areas also provide intensively managed recreation opportunities throughout Wisconsin. The public and private forests of the State that are classified as timberland tend to be used more than other forests for dispersed recreation activities such as hiking, primitive camping, cross-country skiing, and hunting. Intensive and dispersed recreation areas are often intermingled and offer the recreationist diverse recreational opportunities within a limited area.

[14]*Excludes Indian land.*

Figure 18. — *State and federal outdoor recreation opportunities in Wisconsin.*

Public and private recreation interests in Wisconsin are guided by a plan that is part of a continuing process to determine, promote, and implement a Statewide coordinated program that will provide high-quality recreation opportunities for residents and non-residents. The plan serves as a priority guide for acquiring, developing, and managing recreation areas and meets the requirements of eligibility for the federal Land and Water Conservation Fund Act of 1965. The official title of this periodically updated document is the State Comprehensive Outdoor Recreation Plan (SCORP).

Recreation opportunities often center on natural settings. The fourth inventory of Wisconsin attempted to classify the State's timberland along a gradient from primitive, where there is little evidence of human activity, to urban surroundings. Most of Wisconsin's forests were classified as rural or roaded natural settings (83 percent) in which human modification of the landscape is obvious and the forest is generally within one-half mile of a maintained road. Nearly 17 percent of the State forests are classified as primitive or semi-primitive with little evidence of buildings or other manmade structures. Less than 1 percent of the State's timberland is in an urban setting.

Setting	Area of timberland (Thousand acres)	Percent of total
Primitive	16.3	0.1
Semi-primitive, non-motor	433.9	2.9
Semi-primitive, motor	2,032.8	13.8
Roaded natural	7,849.0	53.2
Rural	4,362.3	29.6
Urban	65.1	.4
All settings	14,759.4	100.0

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APPENDIX

ACCURACY OF SURVEY

Forest Inventory and Analysis information is based on a sampling procedure designed to provide reliable statistics at the State and Survey Unit level. Consequently, the reported figures are estimates only. A measure of reliability of these figures is given by sampling errors. These sampling errors mean the chances are two out of three that the true inventory value is within the limits indicated.

For example, the estimated growing-stock volume in Wisconsin in 1983, 15,498.2 million cubic feet, has a sampling error of ±1.05 percent (±162.7 million cubic feet). Therefore, the growing-stock volume from a 100-percent inventory, would have a two in three chance of falling between 15,335.5 and 15,660.9 million cubic feet.

The following tabulation shows the sampling errors for the 1983 Wisconsin Inventory:

Item	State totals	Sampling error
Growing stock	(Million cubic feet)	(Percent)
Volume	15,498.2	1.05
Growth	491.2	1.68
Removals	285.0	10.09
Sawtimber	(Million board feet)	
Volume	35,035.4	1.59
Growth	1,443.0	2.38
Removals	826.3	11.23
	(Thousand acres)	
Timberland area	14,759.4	.22

As survey data are broken down into sections smaller than State or Survey Unit totals, the sampling error increases. The smaller the breakdown, the larger the sampling error. For example, the sampling error for growing-stock volume in a particular Unit or county is higher than that for total growing-stock volume in the State (table 104 shows the sampling errors for estimates smaller than State totals).

SURVEY PROCEDURES

We used a two-phase sampling design for the 1983 Wisconsin survey. This sampling scheme and associated estimators are similar to sampling with partial replacement (SPR) in that a set of randomly located plots was available for remeasurement and a set of new randomly located plots was established and measured. Major enhancements in the new Wisconsin design were stratification for disturbance on the old sample and use of a growth model to improve regression estimates made on the old undisturbed forest plots. The growth model used was the Stand and Tree Evaluation and Modeling System (STEMS).

The major steps in the new survey design were as follows:

1. The first phase of the survey was to interpret aerial photos. In this phase two sets of random points were located on current aerial photographs. The first was a set of new photo points and the second was a set of relocated old photo points (ground plot locations from the previous inventory). A total of 195,220 1-acre points, including old ground sample locations, was systematically distributed across aerial photos of the entire State, except the national forests. These points were classified into land classes as shown below to make a preliminary estimate of forest area. Next, 89,420 of these points were stereoclassified as to stand-size class and density. Finally, a total of 15,535 points was examined on the ground to correct the preliminary area estimate for errors in classification and for actual changes in land use since the photos were taken.

Land class	Photo points classified	Photo points stereoclassified	Inventory plots checked
Forest land	85,183	85,183	6,999
Unproductive/reserved forest land	1,321	1,321	156
Nonforest land	102,312	2,916	7,914
Water	6,404	0	466
Total	195,220	89,420	15,535

2. The second phase of the survey was to sample ground plots. The plot selection and measurement procedures of phase two of the 1983 Wisconsin survey design are outlined in figure 19.

From the new photo points, a random sample of ground plots was established; and land use, volume, mortality, and cutting were recorded. At each forest ground plot location, variable-radius plots (basal area factor 37.5) were established at 10 points uniformly placed over the sample acre. These locations were monumented for future remeasurement.

On the old inventory photo points (old plot locations), we used a somewhat different procedure. Old plots were either remeasurable (monumented) or nonremeasurable (not monumented and thus difficult to relocate). Within both of these groups, old plots

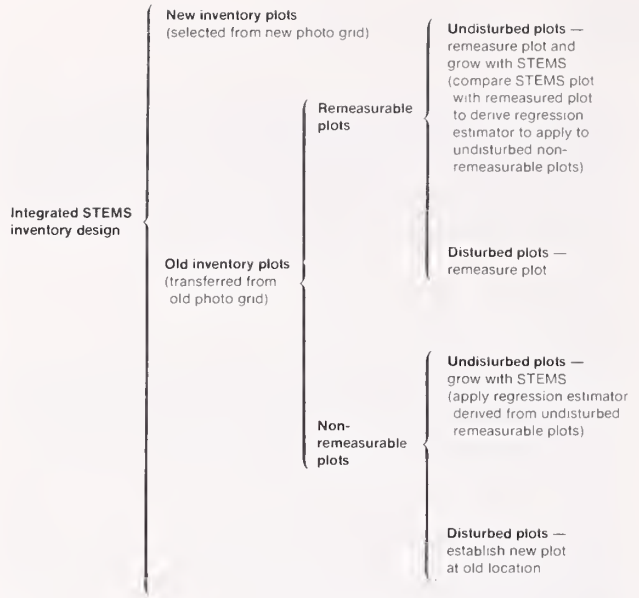

Figure 19. — *Logic structure for the 1983 Wisconsin sampling design.*

were additionally identified as undisturbed or disturbed. The remeasurable old inventory photo points that are classified as forest undisturbed were remeasured on the ground to obtain current land use, volume, growth, and removals data. Additionally, all forest undisturbed remeasurable plots were projected to 1982 using STEMS to provide estimates of current volume and growth. The comparison of the projected and observed values on these plots provided regression estimators to adjust the projected values of the undisturbed nonremeasurable plots. All disturbed remeasurable plots were remeasured on the ground to assess changes since the last inventory.

Disturbance as used here refers to any change on a plot that can be detected on aerial photos and that the STEMS growth processor cannot predict, such as catastrophic mortality, cutting, occurrence of seedling stands, and land use change.

The nonremeasurable forest points are those that were not monumented during the 1968 inventory. STEMS updated these old undisturbed plots, producing an estimate of current data. Thus these points became ground plots even though the information was obtained without actually visiting the plot. For points classified as disturbed, a new ground plot was established as close to the old location as possible. This allowed information about land use trends to be recorded even though the old plot could not be exactly relocated for remeasurement.

The estimation procedure for computing statistics from this sampling design was more complicated than the simple two-phase estimation procedure used in the past. In fact, this procedure yielded two independent samples, one coming from the new photo points and the other coming from the old photo points that were remeasured or projected. A more detailed description of the sampling design is available in a separate publication (Hahn and Hansen (in process)).

3. Statistics on timber utilization during 1981 were obtained from mill surveys. The Wisconsin Department of Natural Resources canvassed resident sawmills, veneer mills, and other primary wood-using plants. The North Central Forest Experiment Station canvassed Wisconsin pulpmills and out-of-State sawmills, pulpmills, and veneer mills to determine their use of Wisconsin timber. Fuelwood and fencepost production was based on a sample of households and loggers. Estimates of primary mill residue used for fuelwood were obtained from the canvass of Wisconsin primary wood-using plants.

4. A total of 2,568 felled trees on 133 active logging operations was measured throughout the State during 1981-1982 to develop wood utilization factors for converting timber products output to timber removals for saw logs and pulpwood. Factors for all other products were obtained during the 1966-1967 Wisconsin utilization study.

5. Field data were sent to St. Paul, Minnesota, to be processed and analyzed.

COMPARING WISCONSIN'S FOURTH INVENTORY WITH THE THIRD INVENTORY

Data from new forest inventories are often compared with data from earlier inventories to determine trends in forest resources. However, changes in procedures and definitions between surveys often make it necessary to adjust earlier survey data so that they are comparable to data from the new survey. A consistency check was made for each Unit to ensure that the changes observed between inventories reflect actual changes in the resource and not changes in definitions or procedures.

Between the 1968 and 1983 inventories of Wisconsin, some procedural changes were made in the method of deriving annual mortality estimates, computing volume, and determining forest type.

Mortality figures for the 1968 inventory were based on field estimates from nonremeasurement plots. Information gathered on remeasurement plots during the current inventory was used to adjust the 1968

mortality figures. This adjustment also changed the estimate of net growth for the 1968 inventory. Additionally, the old spruce-fir forest type was separated into two distinct types for the new inventory—white spruce and balsam fir. Comparisons with old data may be made by adding the two new types together. The 1968 volumes for hard and soft maple in northeast Wisconsin were adjusted upward by 17 percent because the volume equations used for these species in 1968 were found to be in error. Ownership class definitions also changed between the two inventories. A new definition of Indian ownership shifted 213,100 acres reported in 1968 as forest industry to the Indian ownership class in this report. Also, a change in the definition of farm ownership shifted area reported in 1968 as farmer to the miscellaneous private ownership class in this report.

Except for the net growth and mortality information, volumes of hard and soft maple, and some ownership classes, the old and new inventories of Wisconsin may be directly compared.

CHECKING FOR CONSISTENCY

A test was made to ensure that it was possible to move from the 1968 resource statistics to the 1983 values by means of Timber Resource Analysis System (TRAS), a USDA Forest Service computer program for updating, backdating, and projecting timber volume, growth, mortality, and removals. Using growth rates, mortality rates, and removals rates for the period between the two surveys, TRAS updated the inventory from 1968 to 1983. The program prints out volumes by diameter class for softwoods and hardwoods for selected years in the period. Thus, any inconsistencies in volume, growth, mortality, and removals were identified and resolved.

TRAS generates an estimate of what total removals had to be for the inventory to have changed as it did between surveys, given the volume, growth, and mortality data. Estimates of removals for products and for logging residues, two of the three components of total timber removals, were available from an independent utilization study. "Other" removals (see Definition of Terms in Appendix), the third component of total removals, was estimated by subtracting the first two removals components from the TRAS-generated total removals estimate. This estimate of "other" removals was compared with findings from remeasurement plots and new plots (stump counts and land use change) to check its validity.

LOG GRADE

In Wisconsin the butt log of every sawtimber tree on every full permanent sample plot was graded for quality. Additionally, all the logs in a smaller sample of trees throughout the State were graded. The volume yield by log grade for each tree in the latter sample was used to distribute the volume of trees in the former sample into log-grade classes by species group. The resulting volumes by log-grade classes were expanded to provide an estimate for the entire State.

Logs were graded on the basis of external characteristics as indicators of quality. Hardwood species were graded according to "A guide to hardwood log grading" (Rast *et al.* 1973). The best 12-foot section of the lowest 16-foot hardwood log, or the best 12-foot upper section if the butt log did not meet minimum log-grade standards, was graded as follows:

Forest Service standard grades for hardwood factory saw logs

Grading factors		Specifications							
		Log grade 1			Log grade 2				Log grade 3
Position in tree		Butts only	Butts and uppers		Butts and uppers				Butts and uppers
Scaling diameter, inches		13-15[1]	16-19	20+	11+[2]	12+			8+
Length without trim, feet			10+		10+	8-9	10-11	12+	8+
Required clear cuttings[3] of each of three best faces[4]	Min. length, feet	7	5	3	3	3	3	3	2
	Max. number	2	2	2	2	2	2	3	No Limit
	Min. proportion of log length required in clear cutting	5/6	5/6	5/6	2/3	3/4	2/3	2/3	1/2
Maximum sweep and crook allowance	For logs with less than one-fourth of end in sound defects		15 percent			30 percent			50 percent
	For logs with more than one-fourth of end in sound defects		10 percent			20 percent			35 percent
Maximum scaling deduction			40 percent[5]			50 percent[6]			50 percent

[1]Ash and basswood butts can be 12 inches if they otherwise meet requirements for small #1's.
[2]Ten-inch logs of all species can be #2 if they otherwise meet requirements for small #1's.
[3]A clear cutting is a portion of a face, extending the width of the face, that is free of defects.
[4]A face is one-fourth of the surface of the log as divided lengthwise.
[5]Otherwise #1 logs with 41-60 percent deductions can be #2.
[6]Otherwise #2 logs with 51-60 percent deductions can be #3.

Forest Service standard specifications for hardwood construction logs (tie and timber logs)

Position in tree		Butt and upper
Min. diameter, small end		8 inches +
Min. length, without trim		8 feet
Clear cuttings		No requirements.
Sweep allowance, absolute		One-fourth of the diameter at the small end for each 8 feet of length.
Sound surface defects	Single knots	Any number, if no one knot has an average diameter above the callus in excess of one-third of the log diameter at point of occurrence.
	Whorled knots	Any number if sum of knot diameters above the callus does not exceed one-third of the log diameter at point of occurrence.
	Holes	Any number provided none has a diameter over one-third of the log diameter at point of occurrence, and none extends more than 3 inches into included timber.[2]
Unsound surface defects		Same requirements as for sound defects if they extend into included timber.[2] No limit if they do not.
End defects	Sound	No requirements.
	Unsound	None allowed; log must be sound internally, but will admit one shake not to exceed one-fourth the scaling diameter and will admit a longitudinal split not extending more than 5 inches into the contained timber.

[1]These specifications are minimum for the class. If, from a group of logs, factory logs are selected first, thus leaving only non-factory logs from which to select construction logs, then the quality range of the construction logs so selected is limited, and the class may be considered a grade. If selection of construction logs is given first priority, then it may be necessary to subdivide the class into grades.

[2]Included timber is always square, and dimension is judged from small end.

Softwood species were graded according to the following specifications:

Log Grades for Eastern White Pine

Log grade	Minimum size Diameter	Minimum size Length[1]	Sweep or crook allowance	Total cull allowance including sweep	Maximum weevil injury	Allowable knot size (inches)[2] on three best faces or minimum clearness of four faces
	Inches	*Feet*	--------*Percent*--------		*Number*	*Inches*
1	12 & 13	8-16	20	50	0	Four faces clear full length
	14+	10-16	20	50	0	Two faces clear full length, or four faces clear 50 percent length (6 feet min. length)[3]
2	6+	8-16	30	50	0	Sound knots l.e.[4] D/6 and less than 3 inches[5] Unsound knots: l.e. 1½ inches and for: butt, lots l.e. D/12 upper logs l.e. D/10 or four faces clear 50 percent of length
3	6+	8-16	40	50	8-foot logs 1 weevil 10-foot+ logs: 2 weevil	Sound knots l.e. D/3 and less than 5 inches. Unsound knots l.e.D/6 and less than 2½ inches.
4	6+	8-16	50	50	No limit	No limit

[1]Plus trim.
[2]Disregard all knots less than ½-inch diameter in all grades.
[3]The sum of the diameter of sound knots plus twice the sum of the diameter of unsound knots (in inches) is less than or equal to ½ of the diameter of the log (inches).
[4]l.e. means less than or equal to.
[5]D means d.i.b. of log at location of knot.

LOG GRADES FOR JACK PINE AND RED PINE

Grade 1: logs with three or four clear faces.[15]

Grade 2: logs with one or two clear faces.

Grade 3: logs with no clear faces.

After the tentative log grade is established, the log will be degraded one grade for each of the following, except that no log can be degraded below grade 3. Net scale after deduction for defect must be at least 50 percent of the gross contents of the log.

1. *Sweep.* Degrade any tentative 1 or 2 log one grade if sweep amounts to 3 or more inches and equals or exceeds one-third the diameter inside bark at small end.

2. *Heart rot.* Degrade any tentative 1 or 2 log grade if conk, massed hyphae, or other evidence of advance heart rot is found anywhere in it.

[15]*A face is one-fourth of the circumference in width extending full length of the log. Clear faces are those free of: knots measuring more than ½-inch in diameter, overgrown knots of any size, holes more than ¼-inch in diameter. Faces may be rotated to obtain the maximum number of clear ones.*

LOG GRADES FOR ALL OTHER SOFTWOOD LOGS

Grade 1

1. Logs must be 16 inches in diameter or larger, 10 feet or longer, and with deduction for defect not over 30 percent of gross scale.
2. Logs must be at least 75 percent clear on each of three faces.
3. All knots outside clear cutting must be sound and not over 2-½ inches in size.

Grade 2

1. Logs must be 12 inches in diameter or larger, 10 feet or longer, and with a net scale after deduction

for defect of at least 50 percent of the gross contents of the log.
2. Logs must be at least 50 percent clear on each of three faces or 75 percent clear on two faces.

Grade 3

1. Logs must be 6 inches in diameter or larger, 8 feet or longer, and with a net scale after deduction for defect of at least 50 percent of the gross contents of the log.

Note: (A) Diameters are diameter inside bark (d.i.b.) at small end of log.
(B) Percent clear refers to percent clear in one continuous section.

FOREST MANAGEMENT ASSISTANCE

Wisconsin's Managed Forest Law (MFL), enacted in 1985, repealed the Forest Crop Law of 1927 and the Woodland Tax Law of 1954. The new law offers landowners a greater range of options than the previous laws, in addition to the opportunity to lower annual property taxes. Lands in the program must be managed according to sound forestry practices as set forth in a long-term management plan agreed upon by the landowner and the Wisconsin DNR. Details of the MFL are available from the Forest Tax Unit, Bureau of Forestry, Wisconsin Department of Natural Resources, Box 7921, Madison, Wisconsin 53707.

Professional foresters, technicians, associations, tax guides, lending agencies, and industrial experts are available to help the private owner of forest land. A partial list of assistance organizations follows:

Wisconsin Woodland Owners Association
Box 188, Madison, Wisconsin 53701

An organization of small woodland owners that seeks to improve conditions related to managing, harvesting, and marketing on private woodland. The association has informal meetings and a quarterly newsletter.

Wisconsin Tree Farm Committee
Box 250, Madison, Wisconsin 53701

Advice and assistance from industry foresters to private forest owners who want to protect and manage their forest resources.

Private Forestry Consultants
Various Locations

More than 30 professional forestry firms offer forestry services on a fee basis, including surveying, appraisal, timber sale administration, general management planning, litigation, expert testimony, and Christmas tree management. The scope of their services is much broader than those provided by DNR foresters.

North Central Forest Experiment Station
1992 Folwell Ave., St. Paul, Minnesota 55108

This USDA Forest Service research station is responsible for forestry research and inventory in seven States—Illinois, Indiana, Iowa, Michigan, Minnesota, Missouri, and Wisconsin, and also has inventory responsibilities in Kansas, Nebraska, North Dakota, and South Dakota. Research information is available on timber management, Christmas tree pest management, logging technology, forest genetics, forest inventory techniques, and other fields. Individual consulting is limited, and fees are sometimes charged for special request information. The Forest Service Northeastern Area State and Private Forestry also has offices at the North Central Station. State and Private Forestry works through and with various State, private, and federal organizations to relieve the pressure on public land through increased management and utilization of private forest land.

Soil Conservation Service
County SCS Office (generally in USDA Service Centers)

County conservationists provide technical assistance to forest land owners primarily for soil conservation and watershed protection. Some cost-sharing is available for forest improvement.

Wisconsin Department of Natural Resources
(sub-area office addresses listed below)

DNR foresters provide on-the-ground technical services for landowners interested in establishing new forests or improving existing ones. The DNR is the first contact for most public financial assistance programs for forest land improvement and for entries under the Managed Forest Law. Programs other than the Managed Forest Law include the Forestry Incentives Program (FIP) and the Agricultural Conservation Program (ACP), which are funded by the USDA Forest Service and the Agricultural Stabilization and Conservation Service, respectively. They pay a portion of the costs for timber improvement and tree planting.

The Rural Forestry Assistance program (RFA) is co-funded by the DNR and the USDA Forest Service to provide technical assistance to private forest landowners. Nearly every county in Wisconsin has a DNR RFA forester. In addition to administering financial

assistance, the RFA forester also assists with timber sales, insect and disease control, and education programs.

Softwood species were graded according to the following specifications.

Wisconsin DNR Area Offices

SOUTHERN DISTRICT

Dodgeville Area (Richland, Sauk, Iowa, Grant, and Lafayette Counties)

DNR Area Supervisor
Hwy 23, Route 1, Box 10
Dodgeville, WI 53533

Madison Area (Dane, Jefferson, Green, and Rock Counties)

DNR Area Supervisor
3070 Fish Hatchery Road
Madison, WI 53711

Horicon Area (Columbia, Dodge, Fond du Lac, Green Lake, and Marquette Counties)

DNR Area Supervisor
1210 N. Palmatory St.
Horicon, WI 53032

WEST CENTRAL DISTRICT

Eau Claire Area (Eau Claire, Chippewa, Pepin, Dunn, Pierce, and St. Croix Counties)

DNR Area Supervisor
2004 Highland Avenue
Eau Claire, WI 54701

Black River Falls Area (Buffalo, Trempealeau, Clark, and Jackson Counties)

DNR Area Supervisor
Route 4, Box 18
Black River Falls, WI 54615

La Crosse Area (La Crosse, Vernon, Crawford, and Monroe Counties)

DNR Area Supervisor
3550 Mormon Coulee Road
Room 108, SOB
La Crosse, WI 54601

NORTH CENTRAL DISTRICT

Antigo Area (Langlade, Lincoln, and Marathon Counties)

DNR Area Supervisor
1635 Neva Road
Box 310
Antigo, WI 54409

Woodruff Area (Vilas, Oneida, and Forest Counties)

DNR Area Director
Box 440
Woodruff, WI 54568

Wisconsin Rapids Area (Wood, Portage, Adams, and Juneau Counties)

DNR Area Director
1681 2nd Avenue South
Room 118
Wisconsin Rapids, WI 54494

NORTHWEST DISTRICT

Brule Area (Douglas, Bayfield, Ashland, and Iron Counties)

DNR Area Director
Box 125
Brule, WI 54820

Cumberland Area (Burnett, Washburn, Barron, and Polk Counties)

DNR Area Director
1341 2nd Avenue
Box 397
Cumberland, WI 54829

Park Falls Area (Price, Taylor, Rusk, and Sawyer Counties)

DNR Area Director
Box 220
Park Falls, WI 54552

LAKE MICHIGAN DISTRICT

Green Bay Area (Brown, Kewaunee, Manitowoc, and Door Counties)

DNR Area Director
200 North Jefferson
Suite 511
Green Bay, WI 54301

Marinette Area (Florence, Marinette, Oconto, Menominee, and Shawano Counties)

DNR Area Director
Industrial Parkway
Box 16
Marinette, WI 54143

Oshkosh Area (Waupaca, Outagamie, Waushara, Winnebago, and Calumet Counties)

DNR Area Director
Box 2565
Oshkosh, WI 54903

SOUTHEAST DISTRICT

(Sheboygan, Washington, Ozaukee, Waukesha, Racine, Milwaukee, Walworth, and Kenosha Counties)

DNR Area Supervisor
Box 12436
Milwaukee, WI 53212

TREE SPECIES GROUPS IN WISCONSIN[16]

Softwoods
Jack pine ..... *Pinus banksiana*
Red pine ..... *Pinus resinosa*
Eastern white pine ..... *Pinus strobus*
White spruce ..... *Picea glauca*
Black spruce ..... *Picea mariana*
Balsam fir ..... *Abies balsamea*
Eastern hemlock ..... *Tsuga canadensis*
Tamarack ..... *Larix laricina*
Eastern redcedar ..... *Juniperus virginiana*
Northern white-cedar ..... *Thuja occidentalis*
Other softwoods
  Norway spruce ..... *Picea abies*
  Scotch pine ..... *Pinus sylvestris*
Hardwoods
White oak
  White oak ..... *Quercus alba*
  Swamp white oak ..... *Quercus bicolor*
  Bur oak ..... *Quercus macrocarpa*
Select red oak
  Northern red oak ..... *Quercus rubra*
Other red oak
  Northern pin oak ..... *Quercus ellipsoidalis*
  Black oak ..... *Quercus velutina*
Select hickory
  Shagbark hickory ..... *Carya ovata*
Other hickory
  Pignut hickory ..... *Carya glabra*
  Bitternut hickory ..... *Carya cordiformis*
American basswood ..... *Tilia americana*
Beech ..... *Fagus grandifolia*
Yellow birch ..... *Betula alleghaniensis*
Hard maple
  Sugar maple ..... *Acer saccharum*
  Black maple ..... *Acer nigrum*
Soft maple
  Red maple ..... *Acer rubrum*
  Silver maple ..... *Acer saccharinum*
Elm
  American elm ..... *Ulmus americana*
  Slippery elm ..... *Ulmus rubra*
  Rock elm ..... *Ulmus thomasii*
Black ash ..... *Fraxinus nigra*
White and green ash
  White ash ..... *Fraxinus americana*
  Green ash ..... *Fraxinus pennsylvanica*
Eastern cottonwood ..... *Populus deltoides*
Black willow ..... *Salix nigra*
Hackberry ..... *Celtis occidentalis*
Balsam poplar ..... *Populus balsamifera*
Bigtooth aspen ..... *Populus grandidentata*
Quaking aspen ..... *Populus tremuloides*
Paper birch ..... *Betula papyrifera*
River birch ..... *Betula nigra*
Black cherry ..... *Prunus serotina*
Black walnut ..... *Juglans nigra*
Butternut ..... *Juglans cinerea*
Other hardwoods
  Boxelder ..... *Acer negundo*
  Black locust ..... *Robinia pseudoacacia*
  Honeylocust ..... *Gleditsia triacanthos*
  Red mulberry ..... *Morus rubra*
  Northern catalpa ..... *Catalpa speciosa*
Noncommercial species
  Mountain maple ..... *Acer spicatum*
  Eastern hophornbeam ..... *Ostrya virginiana*
  Peachleaf willow ..... *Salix amygdaloides*
  American hornbeam ..... *Carpinus caroliniana*
  Hawthorn ..... *Crataegus* spp.
  Striped maple ..... *Acer pensylvanicum*
  Mountain-ash ..... *Sorbus* spp.
  Pin cherry ..... *Prunus pensylvanica*
  Chokecherry ..... *Prunus virginiana*

[16]*The common and scientific names are based on: Little, Elbert L. 1979. Checklist of United States trees (native and naturalized). Agric. Handb. 541. Washington, DC: U.S. Department of Agriculture, Forest Service. 375 p.*

METRIC EQUIVALENTS OF UNITS USED IN THIS REPORT

1 acre = 4,046.86 square meters or 0.405 hectare.
1,000 acres = 405 hectares.
1 cubic foot = 0.0283 cubic meter.
1 foot = 30.48 centimeters or 0.3048 meter.
1 inch = 25.4 millimeters, 2.54 centimeters, or 0.0254 meter.
1 pound = 0.454 kilograms.
1 ton = 0.907 metric tons.

DEFINITION OF TERMS

Basal area.—The area in square feet of the cross section at breast height of a single tree. When the basal areas of all live trees in a stand are summed, the result is usually expressed as square feet of basal area per acre.

Biomass.—The total above-ground weight, excluding foliage, of all live trees reported in green tons. Biomass is made up of 7 components:

Growing-stock stumps.—Biomass of a growing-stock tree 1-foot stump.

Growing-stock bole.—Biomass of a growing-stock tree from a 1-foot stump to a variable 4-inch top.

Growing-stock tops and limbs.—Biomass of a growing-stock tree from a 1-foot stump minus the growing-stock bole.

Cull stumps.—Biomass of a cull tree 1-foot stump.

Cull bole.—Biomass of a cull tree from a 1-foot stump to a variable 4-inch top.

Cull tops and limbs.—Biomass of a cull tree from a 1-foot stump minus the cull bole.

1- to 5-inch trees.—Biomass of all live trees from 1- to 5-inches in diameter at breast height.

Commercial forest land.—See definition of timberland.

Commercial species.—Tree species presently or prospectively suitable for industrial wood products. (Note: Excludes species of typically small size, poor form, or inferior quality such as hophornbeam and hawthorn.)

County and municipal land.—Lands owned by counties and local public agencies or municipalities, or lands leased to these governmental units for 50 years or more.

Cropland.—Land under cultivation within the past 24 months; including cropland harvested, crop failures, cultivated summer fallow, idle cropland used only for pasture, orchards, and land in soil improvement crops, but excluding land cultivated in developing improved pasture.

Cull.—Portions of a tree that are unusable for industrial wood products, because of rot, form, or other defect.

Diameter classes.—A classification of trees based on diameter outside bark, measured at breast height (4.5 feet above the ground). (Note: D.b.h. is the common abbreviation for diameter at breast height. Two-inch diameter classes are commonly used in Forest Inventory and Analysis, with the even inch the approximate midpoint for a class. For example, the 6-inch class includes trees 5.0 through 6.9 inches d.b.h. inclusive.)

Farm.—Any place from which $1,000 or more of agricultural products were produced and sold during the year.

Farmer-owned land.—Land owned by farm operators. (Note: Excludes land leased by farm operators from nonfarm owners, such as railroad companies and States.)

Forest industry land.—Land owned by companies or individuals operating primary wood-using plants.

Forest land.—Land at least 16.7 percent stocked by forest trees of any size, or formerly having had such tree cover, and not currently developed for nonforest use. (Note: Stocking is measured by comparison of basal area and/or number of trees, by age or size and spacing with specified standards.) The minimum area for classification of forest land is 1 acre. Roadside, streamside, and shelterbelt strips of timber must have a crown width of at least 120 feet to qualify as forest land. Unimproved roads and trails, streams, or other bodies of water or clearings in forest areas shall be classed as forest if less than 120 feet wide. Also see definitions for land area, timberland, noncommercial forest land, productive-reserved forest land, stocking, unproductive forest land, and water.

Forest trees.—Woody plants having a well-developed stem and usually more than 12 feet in height at maturity.

Forest type.—A classification of forest land based upon the species forming a plurality of live tree stocking. Major forest types in Wisconsin are:

Jack pine.—Forests in which jack pine comprises a plurality of the stocking. (Common associates include eastern white pine, red pine, aspen, birch, and oak.)

Red pine.—Forests in which red pine comprises a plurality of the stocking. (Common associates include eastern white pine, jack pine, aspen, birch, and oak.)

White pine.—Forests in which eastern white pine comprises a plurality of the stocking. (Common associates include red pine, jack pine, aspen, birch, and maple.)

Balsam fir.—Forests in which balsam fir and white spruce comprise a plurality of stocking with balsam fir the most common. (Common associates include aspen, maple, birch, northern white-cedar, and tamarack.)

White spruce.—Forests in which white spruce and balsam fir comprise a plurality of the stocking with white spruce the most common. (Common associates include aspen, maple, birch, northern white-cedar, and tamarack.)

Black spruce.—Forests in which swamp conifers comprise a plurality of the stocking with black spruce the most common. (Common associates include balsam fir, tamarack, and northern white-cedar.)

Northern white-cedar.—Forests in which swamp conifers comprise a plurality of the stocking with northern white-cedar the most common. (Common associates include balsam fir, tamarack, and black spruce.)

Tamarack.—Forests in which swamp conifers comprise a plurality of the stocking with tamarack the most common. (Common associates include black spruce, balsam fir and northern white-cedar.)

Oak-hickory.—Forests in which northern red oak, white oak, bur oak, or hickories, singly or in combination, comprise a plurality of the stocking. (Common associates include jack pine, elm, and maple.)

Elm-ash-soft maple.—Forests in which lowland elm, ash, cottonwood, and red maple, singly or in combination, comprise a plurality of the stocking. (Common associates include birch, aspen, and balsam fir.)

Maple-birch.—Forests in which sugar maple, basswood, yellow birch, upland American elm, and red maple, singly or in combination, comprise a plurality of the stocking. (Common associates include white pine, elm, hemlock, and basswood.)

Aspen.—Forests in which quaking aspen or bigtooth aspen, singly or in combination, comprise a plurality of the stocking. (Common associates include oak, pines, balsam fir, and paper birch.)

Paper birch.—Forests in which paper birch comprises a plurality of the stocking. (Common associates include maple, aspen, and balsam fir.)

Exotic.—Forests in which species not native to Wisconsin comprise a plurality of the stocking. (Mostly Scotch pine plantations.)

Gross area.—The entire area of land and water as determined by the Bureau of the Census, 1980.

Growing-stock trees.—Live trees of commercial species meeting the size and quality standards that satisfy merchantability requirements. (Note: Excludes rough and rotten trees.)

Growing-stock volume.—Net volume in cubic feet of growing-stock trees 5 inches d.b.h. and over, from a 1-foot stump to a minimum 4 inch top diameter outside bark of the central stem or to the point where the central stem breaks into limbs. Cubic feet can be converted to cords by dividing by 79 cubic feet per solid wood cord (rough standard cord excluding bark and air spaces).

Hardwoods.—Dicotyledonous trees, usually broad-leaved and deciduous.

Idle farmland.—Includes former croplands, orchards, improved pastures, and farm sites not tended within the past 2 years and presently less than 16.7 percent stocked with trees.

Improved pasture.—Land currently improved for grazing, by cultivation, seeding, irrigation, or clearing of trees or brush and less than 16.7 percent stocked with trees.

Indian land.—All lands held in trust by the United States for individual Indians or tribes, or all lands, titles to which are held by individual Indians or tribes, subject to Federal restrictions against alienation.

Land area.—A. *Bureau of the Census.* The area of dry land and land temporarily or partly covered by water, such as marshes, swamps, and river flood plains (omitting tidal flats below mean high tide); streams, sloughs, estuaries, and canals less than one-eighth of a statute mile wide; and lakes, reservoirs, and ponds less than 40 acres in area.

B. *Forest Inventory and Analysis.* The same as the Bureau of the Census, except minimum width of streams, etc. is 120 feet and minimum size of lakes, etc. is 1 acre.

Live trees.—Growing-stock, rough and rotten trees 1 inch d.b.h. and larger.

Log grades.—A classification of logs based on external characteristics as indicators of quality or value. (See Appendix for specific grading factors used.) Volume of sawtimber by log grade as shown in table 30 represents the volume in each individual log of every tree, summed for each of the 4 grades (See definition of tree grade).

Logging residues.—The unused portions of growing-stock trees cut or killed by logging.

Maintained road.—Any road, hard-topped or other surfaces, that is plowed or graded at least once a year. Includes rights-of-way that are cut or treated to limit herbaceous growth.

Marsh.—Nonforest land that characteristically supports low, generally herbaceous or shrubby vegetation and that is intermittently covered with water.

Merchantable.—Refers to a pulpwood or saw log section that meets pulpwood or saw log specifications, respectively.

Miscellaneous federal land.—Federal land other than national forest.

Miscellaneous private land.—Privately owned land other than forest-industry and farmer-owned land.

Mortality.—The volume of sound wood in growing-stock and sawtimber trees that die annually.

National forest land.—Federal lands that have been legally designated as national forest or purchase units, and other land under the administration of the USDA Forest Service.

Net annual growth of growing stock.—The annual change in volume of sound wood in live sawtimber and poletimber trees and the total volume of trees entering these classes through ingrowth, less volume losses resulting from natural causes.

Net annual growth of sawtimber.—The annual change in the volume of live sawtimber trees and the total volume of trees reaching sawtimber size, less volume losses resulting from natural causes.

Net volume.—Gross volume less deductions for rot, sweep, or other defect affecting use for timber products.

Noncommercial forest land.—(a) Woodland and (b) reserved woodland.

Noncommercial species.—Tree species of typically small size, poor form, or inferior quality that normally do not develop into trees suitable for industrial wood products.

Nonforest land.—Land that has never supported forests, and land formerly forested where use for timber management is precluded by development for other uses. (Note: Includes areas used for crops, improved pasture, residential areas, city parks, improved roads of any width and adjoining clearings, powerline clearings of any width, and 1- to 40-acre areas of water classified by the Bureau of the Census as land. If intermingled in forest areas, unimproved roads and nonforest strips must be more than 120 feet wide and more than 1 acre in area, to qualify as nonforest land.)

a. *Nonforest land without trees.*—Nonforest land with no live trees present.

b. *Nonforest land with trees.*—Nonforest land with one or more trees per acre at least 5 inches d.b.h.

Nonstocked land.—Timberland less than 16.7 percent stocked with growing-stock trees.

Other removals.—Growing-stock trees removed but not utilized for products, or trees left standing but "removed" from the timberland classification by land use change. Examples are removals from cultural operations such as timber stand improvement work, land clearing, and changes in land use, such as a shift of timberland to national park.

Ownership.—Property owned by one owner, regardless of the number of parcels in a specified area.

Ownership size class.—The amount of timberland owned by one owner, regardless of the number of parcels.

Owner tenure.—The length of time a property has been held by the owner.

Pasture and range.—Land that is currently improved for grazing by cultivation, seeding or irrigation plus land on which the natural plant cover is composed principally of native grasses, forbs, or shrubs valuable for forage.

Physiographic class.—A measure of soil and water conditions that affect tree growth on a site. The physiographic classes are:

Xeric sites.—Very dry soils where excessive drainage seriously limits both growth and species occurrence. Example: sandy jack pine plains.

Xeromesic sites.—Moderately dry soils where excessive drainage limits growth and species occurrence to some extent. Example: dry oak ridge.

Mesic sites.—Deep, well-drained soils. Growth and species occurrence are limited only by climate.

Hydromesic sites.—Moderately wet soils where insufficient drainage or infrequent flooding limits growth and species occurrence to some extent. Example: better drained bottomland hardwood sites.

Hydric sites.—Very wet sites where excess water seriously limits both growth and species occurrence. Example: wet, frequently flooded river bottoms and spruce bogs.

Plant byproducts.—Plant residues used for products such as mulch, pulp chips, and fuelwood.

Plant residues.—Wood and bark materials generated at manufacturing plants during production of other products.

Poletimber stands.—(See definition of stand-size class.)

Poletimber trees.—Growing-stock trees of commercial species at least 5 inches d.b.h., but smaller than sawtimber size.

Potential net growth.—The average volume of net annual growth that a forest site is capable of producing under optimal stocking conditions.

Productive-deferred.—Forest land sufficiently productive to qualify as timberland but presently withdrawn from timber utilization because it is being considered for possible inclusion into the Wilderness system.

Reserved timberland.—Forest land sufficiently productive to qualify as timberland but withdrawn from timber utilization through statute, administrative regulation, designation, or exclusive use for Christmas tree production, as indicated by annual shearing. (Previously called productive-reserved forest land under noncommercial forest land.)

Reserved woodland.—Forest land that meets the definition for woodland and is withdrawn from timber utilization through statute, administrative regulation or designation. (Previously called unproductive reserved forest land.)

Rotten trees.—Live trees of commercial species that do not contain at least one 12-foot saw log or two saw logs 8 feet or longer, now or prospectively, and/or do not meet regional specifications for freedom from defect primarily because of rot; that is, when more than 50 percent of the cull volume in a tree is rotten.

Rough trees.—(a) Live trees of commercial species that do not contain at least one merchantable 12-foot saw log or two saw logs 8 feet or longer, now or prospectively, and/or do not meet regional specifications for freedom from defect primarily because of roughness or poor form, and (b) all live trees of noncommercial species.

Roundwood products.—Logs, bolts, or other round sections (including chips from roundwood) cut from

trees for industrial or consumer uses. (Note: Includes saw logs, veneer logs, and bolts; cooperage logs and bolts; pulpwood; fuelwood; piling; poles; posts; hewn ties; mine timbers; and various other round, split, or hewn products.)

Salvable dead trees.—Standing or down dead trees that are considered merchantable by regional standards.

Saplings.—Live trees 1 to 5 inches d.b.h.

Sapling-seedling stands.—(See definition of stand-size class.)

Saw log.—A log meeting minimum standards of diameter, length, and defect, including logs at least 8 feet long, sound and straight and with a minimum diameter outside bark (d.o.b.) for softwoods of 7 inches (9 inches for hardwoods) or other combinations of size and defect specified by regional standards.

Saw log portion.—That part of the bole of sawtimber trees between the stump and the saw log top.

Saw log top.—The point on the bole of sawtimber trees above which a saw log cannot be produced. The minimum saw log top is 7 inches d.o.b. for softwoods and 9 inches d.o.b. for hardwoods.

Sawtimber stands.—(See definition of stand-size class.)

Sawtimber trees.—Growing-stock trees of commercial species containing at least a 12-foot saw log or two noncontiguous saw logs 8 feet or longer, and meeting regional specifications for freedom from defect. Softwoods must be at least 9 inches d.b.h. Hardwoods must be at least 11 inches d.b.h.

Sawtimber volume.—Net volume of the saw log portion of live sawtimber in board feet, International ¼-inch rule, from stump to a minimum 7 inches top diameter outside bark (d.o.b.) for softwoods and a minimum 9 inches top d.o.b. for hardwoods.

Seedlings.—Live trees less than 1 inch d.b.h. that are expected to survive. Only softwood seedlings more than 6 inches tall and hardwood seedlings more than 1 foot tall are counted.

Setting class.—A classification of the physical aspects of the forest stand in relation to the surrounding natural environment. The setting classes are:

Primitive.—An area 3 or more miles from *all* maintained roads or railroads and which has an unmodified natural environment. There can be evidence of foot trails or recreational use. Structures in use are rare. Contact with humans is rare and chances of seeing wildlife are good. Example: Boundary Waters Canoe Area, Minnesota.

Semi-primitive nonmotorized.—An area 1/2 to 3 miles from *all* maintained roads or railroads, but which can be close to primitive roads or trails occasionally used. Modifications to the environment are evident, such as old stumps from logging, but are not apparent to the casual observer. Structures in use are rare. Human contact is low and chances of seeing wildlife are good. Example: Recently undisturbed State lands.

Semi-primitive motorized.—An area 1/2 to 3 miles from *all* maintained roads or railroads, but 1/2 mile or less from primitive roads or trails used by motorized vehicles. Modifications to the environment, human contact and chances of seeing wildlife are good. Example: State lands with snowmobile trails.

Roaded natural.—An area less than 1/2 mile from maintained roads or railroads. Modifications to the environment may be obvious, and buildings are occasionally seen. Chances of seeing wildlife are diminished by evidence of increased human contact. Example: Private hunting lands.

Rural.—An area close to maintained roads, but not limited by distance, and in a setting which has been substantially altered by man. Structures and houses are obvious and/or visible, and human contact is frequent. Wildlife can be present, but sightings are rare. Example: Farm woodlot.

Urban.—An area close to maintained roads, but not limited by distance and surrounded by an urban-suburban setting. Substantial modifications to the environment may be apparent and buildings or structures can usually be seen. Human contact is quite frequent and wildlife sightings are rare. Example: Home development areas.

Short-log (rough tree).—Sawtimber-size trees of commercial species that contain at least one merchantable 8- to 11-foot saw log but not a 12-foot saw log.

Shrub.—A woody, perennial plant differing from a perennial herb in its persistent and woody stem(s), and less definitely from a tree in its lower stature and/or the general absence of a well-defined main stem. For this report shrubs were separated somewhat arbitrarily into tall and low shrubs as follows:

Tall shrubs.—Shrubs normally taller than 1.6 to 3.2 feet (0.5 to 1.0 meter).

Low shrubs.—Shrubs normally shorter than 1.6 to 3.2 feet (0.5 to 1.0 meter). (Woody perennial vines, such as grape, were included with low shrubs.)

Shrub biomass.—The total above-ground weight (including the bark) of selected species of shrubs and trees less than 1 inch d.b.h.

Site class.—A classification of forest land in terms of inherent capacity to grow crops of industrial wood based on fully stocked natural stands.

Site index.—An expression of forest site quality based on the height of a free-growing dominant or

codominant tree of a representative species in the forest type at age 50.

Softwoods.—Coniferous trees, usually evergreen, having needles or scale-like leaves.

Stand.—A growth of trees on a minimum of 1 acre of forest land that is stocked by forest trees of any size.

Stand-age class.—Age of the main stand. Main stand refers to trees of the dominant forest type and stand-size class.

Stand-area class.—The extent of a continuous forested area of the same forest type, stand-size class, and stand-density class.

Stand-size class.—A classification of forest land based on the size class of growing-stock trees on the area; that is, sawtimber, poletimber or seedlings and saplings.

Sawtimber stands.—Stands at least 16.7 percent stocked with growing-stock trees, with at least half of total stocking in sawtimber or poletimber trees, and with sawtimber stocking at least equal to poletimber stocking.

Poletimber stands.—Stands at least 16.7 percent stocked with growing-stock trees of which at least half of this stocking is in poletimber and/or sawtimber trees, and with poletimber stocking exceeding that of sawtimber.

Sapling-seedling stands.—Stands at least 16.7 percent stocked with growing-stock trees of which more than half of the stocking is saplings and/or seedlings.

Nonstocked stands.—Stands in which stocking of growing-stock trees is less than 16.7 percent.

State land.—Land owned by States, or land leased to these governmental units for 50 years or more.

Stocking.—The degree of occupancy of land by trees, measured by basal area and/or the number of trees in a stand by size or age and spacing, compared to the basal area and/or number of trees required to fully utilize the growth potential of the land; that is, the stocking standard

A stocking percent of 100 indicates full utilization of the site and is equivalent to 80 square feet of basal area per acre in trees 5 inches d.b.h. and larger. In a stand of trees less than 5 inches d.b.h., a stocking percent of 100 would indicate that the present number of trees is sufficient to produce 80 square feet of basal area per acre when the trees reach 5 inches d.b.h.

Stands are grouped into the following stocking classes:

Overstocked stands.—Stands in which stocking of trees is 130.0 percent or more

Fully stocked stands.—Stands in which stocking of trees is from 100.0 to 129.9 percent.

Medium stocked stands.—Stands in which stocking of trees is from 60.0 to 99.9 percent

Poorly stocked stands.—Stands in which stocking of trees is from 16.7 to 59.9 percent

Nonstocked areas.—Timberland on which stocking of trees is less than 16.7 percent.

Timber removals from growing stock.—The volume of sound wood in live sawtimber and poletimber trees removed annually for forest products (including roundwood products and logging residues) and for other removals. Roundwood products are logs, bolts, or other round sections cut from trees. Logging residues are the unused portions of cut trees plus unused trees killed by logging. Other removals are growing-stock trees removed but not utilized for products by cultural operations such as timber stand improvement work, and by land clearing and changes in land use.

Timber removals from sawtimber.—The net board-foot volume of live sawtimber trees removed for forest products annually (including roundwood products and logging residues) and for other removals.

Timber products output.—All timber products cut from roundwood and byproducts of wood manufacturing plants. Roundwood products include logs, bolts, or other round sections cut from growing-stock trees, cull trees, salvable dead trees, trees on nonforest land, noncommercial species, sapling-size trees, and limbwood. Byproducts from primary manufacturing plants include slabs, edging, trimmings, miscuts, sawdust, shavings, veneer cores and clippings, and screenings of pulpmills that are used as pulpwood chips or other products.

Timberland.—(This is a new term universally used in Forest Inventory and Analysis reports and is exactly equivalent to the term "commercial forest land" previously used.) Forest land producing or capable of producing crops of industrial wood and not withdrawn from timber utilization. (Note: Areas qualifying as timberland have the capability of producing in excess of 20 cubic feet per acre per year of annual growth under management. Currently inaccessible and inoperable areas are included, except when the areas involved are small and unlikely to become suitable for production of industrial wood in the foreseeable future.)

Tree biomass.—The total aboveground weight (including the bark) of all live trees.

Tree grade.—A classification of trees based on external characteristics as indicators of quality or value. Volume of sawtimber by tree grade shown in table 29 represents the volume of entire trees assigned the grade given the butt log of each tree (See definition of log grade).

Tree size class.—A classification of trees based on diameter at breast height, including sawtimber trees, poletimber trees, saplings, and seedlings.

Upper stem portion.—That part of the bole of sawtimber trees above the saw log top to a minimum top diameter of 4 inches outside bark or to the point where the central stem breaks into limbs.

Urban and other areas.—Areas within the legal boundaries of cities and towns; suburban areas developed for residential, industrial, or recreational purposes; schoolyards, cemeteries, roads; railroads; airports; beaches; powerlines; and other rights-of-way; or other nonforest land not included in any other specified land use class.

Water.—(a) *Bureau of the Census.*—Permanent inland water surfaces, such as lakes, reservoirs, and ponds having 40 acres or more of area; streams, sloughs, estuaries, and canals one-eighth of a statute mile or more in width.

(b) *Noncensus.*—Permanent inland water surfaces, such as lakes, reservoirs, and ponds having 1-39.9 acres of area; streams, sloughs, estuaries, and canals 120 feet to one-eighth of a statute mile in width.

Windbreak.—A group of trees less than 120 feet wide used for the protection of soil, cropfields, and buildings in use.

Wooded pasture.—Improved pasture with more than 16.7 percent stocking in live trees but less than 25 percent stocking in growing-stock trees. Area is currently improved for grazing or there is other evidence of grazing.

Wooded strip.—An acre or more of natural continuous forest land that would otherwise meet survey standards for timberland except that it is less than 120 feet wide.

Woodland.—Forest land incapable of producing 20 cubic feet per acre of annual growth or of yielding crops of industrial wood under natural conditions because of adverse site conditions. (Note: Adverse conditions include shallow soils, dry climate, poor drainage, high elevation, steepness, and rockiness.) (Previously called unproductive forest land.)

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(In thousand cubic feet)

Species group	1968[1/]	1983
Softwoods		
Jack pine	432,849	536,333
Red pine	245,342	763,226
White pine	424,471	565,605
White spruce	81,855	199,628
Black spruce	92,206	123,955
Balsam fir	440,205	553,038
Hemlock	339,558	283,898
Tamarack	113,325	133,877
Eastern redcedar	356	3,973
Northern white-cedar	348,283	471,544
Other softwoods	650	3,231
Total	2,519,100	3,638,308
Hardwoods		
White oak	407,850	632,216
Select red oak	1,000,373	1,419,689
Other red oak	372,078	625,311
Select hickory	73,609	113,434
Other hickory	33,099	80,472
Basswood	561,023	835,765
Beech	25,326	28,707
Yellow birch	220,444	207,564
Hard maple	1,004,585	1,494,611
Soft maple	679,959	1,219,528
Elm	695,795	434,129
Black ash	305,109	426,864
White & green ash	200,676	310,499
Cottonwood	19,298	32,668
Willow	14,778	24,200
Hackberry	988	2,478
Balsam poplar	32,441	39,414
Bigtooth aspen	522,579	686,786
Quaking aspen	1,648,199	1,938,487
Paper birch	720,835	1,046,686
River birch	8,500	8,646
Black cherry	69,270	164,017
Black walnut	7,407	22,609
Butternut	18,361	38,952
Other hardwoods	6,318	26,145
Total	8,648,900	11,859,877
All species	11,168,000	15,498,185

[1/] Figures have been adjusted from those published after the 1968 survey to conform to 1983 volumes because of changes in survey definitions and procedures.

Table 9.--Net volume of all live trees on timberland by species group and diameter class, Wisconsin, 1983

(In thousand cubic feet)

Species group	All classes	Diameter class (inches at breast height) 5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-28.9	29.0-38.9	39.0+
Softwoods													
Jack pine	576,685	168,968	180,172	125,577	70,419	23,569	7,275	531	174	--	--	--	--
Red pine	771,606	221,938	198,829	119,906	75,193	40,493	39,240	37,135	21,196	11,546	6,130	--	--
White pine	600,400	24,220	44,791	51,014	61,806	69,276	69,955	73,034	57,477	47,062	74,343	26,926	496
White spruce	205,234	28,169	49,084	44,372	33,477	23,063	13,965	6,924	2,340	2,292	1,548	--	--
Black spruce	127,049	65,421	38,361	16,074	5,065	881	1,095	152	--	--	--	--	--
Balsam fir	566,663	153,514	172,561	137,521	63,439	21,809	15,540	2,077	202	--	--	--	--
Hemlock	303,195	10,726	22,020	35,576	41,775	44,608	37,686	41,133	25,631	16,072	24,803	3,165	--
Tamarack	139,170	52,311	48,681	18,912	12,489	3,975	1,151	1,323	328	--	--	--	--
Eastern redcedar	5,865	3,155	1,124	840	292	160	294	--	--	--	--	--	--
Northern white-cedar	537,041	128,938	145,908	110,682	77,904	39,901	19,753	7,933	3,563	1,512	947	--	--
Other softwoods	4,919	1,394	862	640	1,403	--	620	--	--	--	--	--	--
Total	3,837,827	858,754	902,393	661,114	443,262	267,735	206,574	170,242	110,911	78,484	107,771	30,091	496
Hardwoods													
White oak	853,021	57,257	86,724	106,178	128,006	119,187	104,754	76,538	54,061	42,486	53,121	20,991	3,738
Select red oak	1,617,120	126,434	185,630	231,297	240,870	205,061	179,139	134,323	99,742	75,242	105,203	33,234	945
Other red oak	927,994	77,244	123,269	146,751	148,030	127,309	109,104	68,775	44,503	29,551	44,747	8,260	451
Select hickory	135,646	20,244	26,258	27,775	25,728	16,356	10,980	5,062	2,063	609	571	--	--
Other hickory	86,738	35,859	21,582	9,558	12,451	4,191	1,888	705	253	--	251	--	--
Basswood	916,982	90,474	163,125	198,506	155,492	111,014	68,215	47,024	28,446	20,234	24,025	8,196	2,231
Beech	36,766	1,057	2,797	2,929	5,792	4,998	4,235	5,959	3,256	2,611	2,716	416	--
Yellow birch	272,271	25,207	39,242	49,710	41,365	34,291	26,272	24,039	11,689	7,856	9,782	2,818	--
Hard maple	1,750,232	328,519	334,088	261,129	203,305	165,237	137,660	107,052	74,648	50,954	69,306	17,788	546
Soft maple	1,451,822	403,536	333,478	238,987	151,494	107,035	70,059	49,808	29,819	23,463	25,973	14,313	3,857
Elm	519,445	40,069	66,516	87,422	89,910	71,712	61,229	36,297	21,012	13,162	21,188	9,802	1,126
Black ash	457,794	154,808	117,701	85,529	51,181	22,928	15,364	5,811	2,289	1,486	697	--	--
White & green ash	342,931	42,693	57,087	71,940	62,163	43,698	30,375	15,305	6,989	2,537	8,510	1,634	--
Cottonwood	35,476	608	1,278	1,255	4,334	6,856	1,082	3,267	3,381	1,084	2,999	6,455	2,877
Willow	34,446	940	2,003	2,519	4,203	3,709	4,237	5,486	2,324	2,004	4,630	2,391	--
Hackberry	2,687	269	465	--	796	769	--	--	--	--	388	--	--
Balsam poplar	41,033	4,570	6,026	6,585	5,476	9,494	4,319	1,017	1,546	1,504	330	166	--
Bigtooth aspen	725,731	75,927	140,694	182,628	168,617	85,852	44,979	19,243	4,266	2,459	835	231	--
Quaking aspen	2,101,770	420,341	551,596	517,238	334,142	173,837	72,420	23,133	6,506	2,055	502	--	--
Paper birch	1,143,339	344,603	380,347	236,107	112,200	46,863	16,711	3,981	1,947	269	206	105	--
River birch	11,392	1,191	2,132	2,216	2,153	786	1,257	--	1,091	343	223	--	--
Black cherry	233,533	61,900	52,796	51,400	25,476	24,458	8,169	4,770	2,251	954	1,283	76	--
Black walnut	27,406	2,519	2,843	4,167	5,296	5,233	1,863	3,416	1,016	732	321	--	--
Butternut	57,918	4,080	12,811	8,287	10,390	8,274	8,006	2,974	1,453	568	826	249	--
Other hardwoods	53,256	13,278	10,888	7,267	7,514	6,653	3,424	2,077	806	138	1,054	157	--
Noncommercial sp.	72,694	40,891	19,546	7,046	4,368	710	133	--	--	--	--	--	--
Total	13,909,443	2,374,518	2,740,922	2,544,426	2,000,752	1,406,511	985,874	646,062	405,357	282,281	379,687	127,282	15,771
All species	17,747,270	3,233,272	3,643,315	3,205,540	2,444,014	1,674,246	1,192,448	816,304	516,268	360,765	487,458	157,373	16,267

Table 10.--Net volume of timber on timberland by class of timber and softwoods and hardwoods, Wisconsin, 1983

(In thousand cubic feet)

Class of timber	All species	Softwoods	Hardwoods
Live trees			
Growing-stock trees			
Poletimber	8,444,948	1,686,332	6,758,616
Sawtimber			
Saw log portion	5,604,040	1,691,292	3,912,748
Upper stem portion	1,449,197	260,684	1,188,513
Subtotal	7,053,237	1,951,976	5,101,261
Total growing stock	15,498,185	3,638,308	11,859,877
Cull trees			
Rough and rotten cull trees			
Poletimber	979,018	75,356	903,662
Sawtimber	848,895	89,361	759,534
Subtotal	1,827,913	164,717	1,663,196
Short-log trees	421,172	34,802	386,370
Total cull	2,249,085	199,519	2,049,566
All live trees	17,747,270	3,837,827	13,909,443
Salvable dead trees			
Growing-stock trees	444,319	78,795	365,524
Cull trees	11,511	1,776	9,735
All salvable dead trees	455,830	80,571	375,259
All classes	18,203,100	3,918,398	14,284,702

Table 11.--Net volume of growing stock in the sawlog portion of sawtimber trees on timberland by species group and diameter class, Wisconsin, 1983

(In thousand cubic feet)

Species group	All classes	Diameter class (inches at breast height) 9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-28.9	29.0-38.9	39.0+
Softwoods											
Jack pine	162,562	86,377	54,517	16,578	4,674	247	169	--	--	--	--
Red pine	305,177	91,328	65,745	37,374	37,144	35,696	20,687	11,152	6,051	--	--
White pine	461,338	31,509	48,633	59,623	63,095	67,101	53,958	42,641	69,991	24,293	494
White spruce	108,589	33,096	28,714	21,114	12,942	6,640	2,290	2,259	1,534	--	--
Black spruce	18,932	12,481	4,421	827	1,055	148	--	--	--	--	--
Balsam fir	189,475	100,176	53,363	19,645	14,489	1,605	197	--	--	--	--
Hemlock	226,746	21,308	31,043	37,536	33,886	37,417	22,981	15,648	23,927	3,000	--
Tamarack	30,273	13,877	10,635	3,067	1,097	1,277	320	--	--	--	--
Eastern redcedar	704	282	--	146	276	--	--	--	--	--	--
Northern white-cedar	186,339	72,047	56,507	32,035	15,317	6,471	2,202	1,127	633	--	--
Other softwoods	1,157	92	786	--	279	--	--	--	--	--	--
Total	1,691,292	462,573	354,364	227,945	184,254	156,602	102,804	72,827	102,136	27,293	494
Hardwoods											
White oak	344,176	--	55,707	66,420	63,376	49,611	35,433	27,801	31,989	11,040	2,799
Select red oak	745,635	--	127,386	135,441	132,344	109,252	78,913	57,795	81,833	21,733	938
Other red oak	299,612	--	60,389	62,806	62,694	39,421	27,601	18,130	24,199	4,372	--
Select hickory	35,202	--	12,013	9,765	6,703	3,752	1,865	563	541	--	--
Other hickory	10,441	--	5,444	2,619	1,304	611	226	--	237	--	--
Basswood	321,369	--	90,490	79,556	52,017	36,085	21,874	15,959	18,320	6,209	859
Beech	19,114	--	2,821	3,252	2,737	4,172	2,173	1,924	2,035	--	--
Yellow birch	96,084	--	18,419	20,376	18,238	17,417	8,461	5,438	6,076	1,659	--
Hard maple	544,973	--	103,143	103,339	97,910	80,165	56,783	39,914	51,416	12,013	290
Soft maple	281,020	--	74,981	65,998	44,447	33,184	20,347	14,092	18,635	7,955	1,381
Elm	209,088	--	44,681	44,874	41,520	27,990	15,863	10,212	16,668	6,273	1,007
Black ash	64,967	--	28,367	16,294	11,830	4,827	1,661	1,404	584	--	--
White & green ash	114,771	--	34,616	29,672	22,846	12,071	6,198	2,178	5,753	1,437	--
Cottonwood	25,610	--	2,227	4,853	894	2,900	2,941	1,025	1,894	6,276	2,600
Willow	16,415	--	2,283	1,861	2,878	4,490	1,692	940	1,985	286	--
Hackberry	1,431	--	441	618	--	--	--	--	372	--	--
Balsam poplar	18,108	--	3,253	7,482	3,520	631	1,447	1,437	175	163	--
Bigtooth aspen	220,112	--	101,737	63,179	35,285	14,452	3,182	1,514	536	227	--
Quaking aspen	373,011	--	182,819	116,056	52,575	16,184	4,084	998	295	--	--
Paper birch	101,410	--	56,935	29,815	11,010	2,661	711	149	129	--	--
River birch	3,453	--	939	529	774	--	670	326	215	--	--
Black cherry	33,602	--	10,852	12,017	4,246	3,739	1,642	315	791	--	--
Black walnut	11,476	--	2,531	3,831	1,002	2,621	640	617	234	--	--
Butternut	17,051	--	4,380	4,392	4,405	1,952	927	223	528	244	--
Other hardwoods	4,617	--	1,505	1,928	187	398	599	--	--	--	--
Total	3,912,748	--	1,028,359	886,973	674,742	468,586	295,933	202,954	265,440	79,887	9,874
All species	5,604,040	462,573	1,382,723	1,114,918	858,996	625,188	398,737	275,781	367,576	107,180	10,368

Table 12.--Net volume of growing-stock, sawtimber, short-log, and rough and rotten trees on timberland by individual species, Wisconsin, 1983

Species	Total all live	Growing stock	Short-log cull	Rough and rotten cull	Total saw log	Saw-log size trees	
						Sawtimber	Short-log
	- - - - - - -	Thousand cubic feet	- - - - - - - -		- - - - -	Thousand board feet[1]	- - - -
Softwoods							
Jack pine	576,685	536,333	6,579	33,773	1,092,224	1,069,425	22,799
Red pine	771,606	763,226	380	8,000	1,998,648	1,997,086	1,562
White pine	600,400	565,605	11,024	23,771	2,703,704	2,666,253	37,451
White spruce	205,234	199,628	559	5,047	609,338	606,863	2,475
Black spruce	127,049	123,955	192	2,902	102,290	101,796	494
Balsam fir	566,663	553,038	1,381	12,244	1,035,117	1,031,536	3,581
Hemlock	303,195	283,898	6,026	13,271	1,145,397	1,130,685	14,712
Tamarack	139,170	133,877	620	4,673	196,553	193,864	2,689
Eastern redcedar	5,865	3,973	--	1,892	4,843	4,843	--
Northern white-cedar	537,041	471,544	7,677	57,820	1,145,197	1,118,865	26,332
Scotch pine	4,508	2,820	364	1,324	9,450	7,630	1,820
Norway spruce	411	411	--	--	--	--	--
Total	3,837,827	3,638,308	34,802	164,717	10,042,761	9,928,846	113,915
Hardwoods							
White oak	618,672	465,580	48,028	105,064	1,774,463	1,648,564	125,899
Swamp white oak	26,933	22,575	1,671	2,687	89,731	85,459	4,272
Bur oak	207,416	144,061	15,607	47,748	538,012	496,755	41,257
Northern red oak	1,617,120	1,419,689	58,301	139,130	4,686,524	4,555,263	131,261
Northern pin oak	406,506	258,522	25,536	122,448	740,780	682,670	58,110
Black oak	521,488	366,789	41,946	112,753	1,231,153	1,135,300	95,853
Shagbark hickory	135,646	113,434	4,065	18,147	283,167	272,089	11,078
Bitternut hickory	86,660	80,472	1,319	4,869	90,020	86,411	3,609
Pignut hickory	78	--	--	78	--	--	--
American basswood	916,982	835,765	16,376	64,841	2,027,404	1,991,915	35,489
Beech	36,766	28,707	1,674	6,385	121,659	117,188	4,471
Yellow birch	272,271	207,564	11,098	53,609	587,744	561,730	26,014
Black maple	1,502	1,309	193	--	7,129	6,619	510
Sugar maple	1,748,730	1,493,302	47,216	208,212	3,492,747	3,377,801	114,946
Red maple	1,336,943	1,130,926	27,768	178,249	1,632,643	1,557,812	74,831
Silver maple	114,879	88,602	7,083	19,194	319,657	301,424	18,233
American elm	433,018	360,173	21,507	51,338	1,048,267	993,766	54,501
Slippery elm	61,416	50,435	2,296	8,685	140,658	134,819	5,839
Rock elm	25,011	23,521	132	1,358	54,457	54,123	334
Black ash	457,794	426,864	1,962	28,968	555,392	549,728	5,664
White ash	238,348	218,410	4,497	15,441	556,410	546,016	10,394
Green ash	104,583	92,089	2,570	9,924	273,131	267,163	5,968
Eastern cottonwood	35,476	32,668	1,311	1,497	134,968	130,777	4,191
Black willow	34,446	24,200	2,891	7,355	93,358	84,501	8,857
Hackberry	2,687	2,478	--	209	8,473	8,473	--
Balsam poplar	41,033	39,414	327	1,292	100,721	99,922	799
Bigtooth aspen	725,731	686,786	7,574	31,371	1,397,682	1,385,402	12,280
Quaking aspen	2,101,770	1,938,487	11,740	151,543	2,681,364	2,655,293	26,071
Paper birch	1,143,339	1,046,686	8,418	88,235	814,443	791,454	22,989
River birch	11,392	8,646	645	2,101	21,616	19,495	2,121
Black cherry	233,533	164,017	6,276	63,240	279,098	262,572	16,526
Black walnut	27,406	22,609	798	3,999	86,858	84,770	2,088
Butternut	57,918	38,952	2,758	16,208	131,337	123,867	7,470
Boxelder	37,039	14,535	2,215	20,289	32,692	24,662	8,030
Northern catalpa	397	--	--	397	--	--	--
Honeylocust	1,193	1,128	--	65	2,535	2,535	--
Red mulberry	1,157	205	--	952	--	--	--
Black locust	13,470	10,277	572	2,621	12,246	10,229	2,017
Total	13,836,749	11,859,877	386,370	1,590,502	26,048,539	25,106,567	941,972
All species[2]	17,674,576	15,498,185	421,172	1,755,219	36,091,300	35,035,413	1,055,887

[1] International 1/4-inch rule.

[2] These totals do not include volume for noncommercial species. Volumes for individual noncommercial species are found in Table 13.

Table 13.--Net volume of noncommercial species on timberland by individual species, Wisconsin, 1983

(In thousand cubic feet)

Species	Cull volume
Ailanthus	576
American hornbeam	583
Hawthorn	2,892
Apple	1,104
Eastern hophornbeam	60,344
Pincherry	1,243
Chokecherry	5,377
Mountain ash	504
Peachleaf willow	71
All species	72,694

Table 14.--Net volume of growing stock on timberland by species group and Forest Survey Unit, Wisconsin, 1983

(In thousand cubic feet)

Species group	All Units	Forest Survey Unit				
		Northeast	Northwest	Central	Southwest	Southeast
Softwoods						
Jack pine	536,333	98,249	237,849	190,546	7,060	2,629
Red pine	763,226	264,500	179,071	232,454	67,514	19,687
White pine	565,605	208,242	154,382	172,290	14,305	16,386
White spruce	199,628	72,646	121,342	905	310	4,425
Black spruce	123,955	76,929	41,303	3,982	914	827
Balsam fir	553,038	235,337	299,183	16,335	194	1,989
Hemlock	283,898	188,149	66,348	26,895	--	2,506
Tamarack	133,877	38,276	59,582	25,976	--	10,043
Eastern redcedar	3,973	--	--	405	1,479	2,089
Northern white-cedar	471,544	241,284	124,494	30,702	--	75,064
Other softwoods	3,231	--	325	2,565	--	341
Total	3,638,308	1,423,612	1,283,879	703,055	91,776	135,986
Hardwoods						
White oak	632,216	10,329	73,731	160,013	278,311	109,832
Select red oak	1,419,689	209,694	392,975	336,908	403,571	76,541
Other red oak	625,311	42,462	41,248	317,206	175,245	49,150
Select hickory	113,434	--	--	5,344	74,011	34,079
Other hickory	80,472	10,553	9,803	11,836	40,083	8,197
Basswood	835,765	273,476	334,289	75,883	124,839	27,278
Beech	28,707	14,767	--	1,092	--	12,848
Yellow birch	207,564	89,587	85,401	24,323	1,263	6,990
Hard maple	1,494,611	639,062	553,791	115,891	116,869	68,998
Soft maple	1,219,528	298,795	468,019	306,458	91,605	54,651
Elm	434,129	116,361	141,996	43,125	88,963	43,684
Black ash	426,864	81,141	226,230	63,807	14,133	41,553
White & green ash	310,499	71,562	83,849	38,682	44,283	72,123
Cottonwood	32,668	7,586	--	2,368	18,288	4,426
Willow	24,200	2,020	163	3,034	6,822	12,161
Hackberry	2,478	--	--	--	1,635	843
Balsam poplar	39,414	26,115	8,547	--	1,466	3,286
Bigtooth aspen	686,786	153,953	272,055	153,865	87,754	19,159
Quaking aspen	1,938,487	589,553	872,273	351,029	79,237	46,395
Paper birch	1,046,686	366,696	438,362	127,154	91,251	23,223
River birch	8,646	--	--	2,706	5,940	--
Black cherry	164,017	41,678	19,820	16,345	47,829	38,345
Black walnut	22,609	--	--	220	16,233	6,156
Butternut	38,952	4,970	4,841	4,880	21,628	2,633
Other hardwoods	26,145	104	118	3,641	12,636	9,646
Total	11,859,877	3,050,464	4,027,511	2,165,810	1,843,895	772,197
All species	15,498,185	4,474,076	5,311,390	2,868,865	1,935,671	908,183

Table 15.--Net volume of sawtimber on timberland by species group and Forest Survey Unit, Wisconsin, 1983

(In thousand board feet)[1/]

Species group	All Units	Forest Survey Unit				
		Northeast	Northwest	Central	Southwest	Southeast
Softwoods						
Jack pine	1,069,425	227,227	403,480	416,129	19,028	3,561
Red pine	1,997,086	902,043	654,363	325,587	73,260	41,833
White pine	2,666,253	1,032,510	745,829	772,302	57,982	57,630
White spruce	606,863	223,435	368,931	3,147	--	11,350
Black spruce	101,796	65,215	33,543	3,038	--	--
Balsam fir	1,031,536	422,051	588,647	18,838	--	2,000
Hemlock	1,130,685	772,542	264,927	88,210	--	5,006
Tamarack	193,864	41,560	94,390	34,873	--	23,041
Eastern redcedar	4,843	--	--	1,272	1,837	1,734
Northern white-cedar	1,118,865	510,669	388,516	40,436	--	179,244
Other softwoods	7,630	--	1,392	6,238	--	--
Total	9,928,846	4,197,252	3,544,018	1,710,070	152,107	325,399
Hardwoods						
White oak	2,230,778	28,737	202,018	472,657	1,037,655	489,711
Select red oak	4,555,263	565,970	846,693	1,106,582	1,698,953	337,065
Other red oak	1,817,970	105,416	100,877	772,840	657,420	181,417
Select hickory	272,089	--	--	13,982	161,696	96,411
Other hickory	86,411	14,715	9,661	19,733	29,895	12,407
Basswood	1,991,915	562,327	732,985	213,198	387,042	96,363
Beech	117,188	59,359	--	4,749	--	53,080
Yellow birch	561,730	272,974	221,270	54,922	3,262	9,302
Hard maple	3,384,420	1,469,909	905,072	341,476	425,061	242,902
Soft maple	1,859,236	351,355	498,562	563,439	265,802	180,078
Elm	1,182,708	324,027	411,041	109,512	228,878	109,250
Black ash	549,728	99,241	269,758	100,226	30,886	49,617
White & green ash	813,179	179,441	190,571	96,736	131,000	215,431
Cottonwood	130,777	30,690	--	10,173	73,983	15,931
Willow	84,501	7,351	720	10,825	19,288	46,317
Hackberry	8,473	--	--	--	4,632	3,841
Balsam poplar	99,922	64,911	17,149	--	6,428	11,434
Bigtooth aspen	1,385,402	276,262	530,658	266,184	250,507	61,791
Quaking aspen	2,655,293	874,391	1,255,261	328,348	136,605	60,688
Paper birch	791,454	301,063	293,605	55,304	115,121	26,361
River birch	19,495	--	--	5,566	13,929	--
Black cherry	262,572	60,306	14,138	10,963	66,409	110,756
Black walnut	84,770	--	--	1,275	59,651	23,844
Butternut	123,867	22,406	13,381	21,233	60,829	6,018
Other hardwoods	37,426	577	--	5,743	22,074	9,032
Total	25,106,567	5,671,428	6,513,420	4,585,666	5,887,006	2,449,047
All species	35,035,413	9,868,680	10,057,438	6,295,736	6,039,113	2,774,446

[1/] International 1/4-inch rule.

Table 16.--Net volume of growing stock on timberland by species group and diameter class, Wisconsin, 1983

(In thousand cubic feet)

Species group	All classes	Diameter class (inches at breast height) 5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-28.9	29.0-38.9	39.0+
Softwoods													
Jack pine	536,333	156,717	172,995	118,496	64,503	18,221	4,968	259	174	--	--	--	--
Red pine	763,226	218,865	195,820	118,526	75,069	40,311	39,043	36,912	21,196	11,354	6,130	--	--
White pine	565,605	22,685	41,619	45,631	57,810	65,782	67,084	69,954	55,573	43,562	70,957	24,452	496
White spruce	199,628	28,054	46,623	43,109	32,632	22,648	13,540	6,842	2,340	2,292	1,548	--	--
Black spruce	123,955	63,946	37,278	15,672	4,931	881	1,095	152	--	--	--	--	--
Balsam fir	553,038	151,614	168,183	133,679	61,288	21,248	15,167	1,657	202	--	--	--	--
Hemlock	283,898	9,884	19,289	32,683	37,671	41,840	36,267	39,178	23,732	16,026	24,305	3,023	--
Tamarack	133,877	50,668	46,609	18,303	12,180	3,315	1,151	1,323	328	--	--	--	--
Eastern redcedar	3,973	2,705	440	374	--	160	294	--	--	--	--	--	--
Northern white-cedar	471,544	118,105	131,884	94,770	65,180	34,734	16,118	6,709	2,256	1,148	640	--	--
Other softwoods	3,231	1,171	682	139	941	--	298	--	--	--	--	--	--
Total	3,638,308	824,414	861,422	621,382	412,205	249,140	195,025	162,986	105,801	74,382	103,580	27,475	496
Hardwoods													
White oak	632,216	44,993	67,646	82,903	99,211	89,817	76,240	56,020	38,563	29,539	33,222	11,242	2,820
Select red oak	1,419,689	110,921	169,074	210,240	215,635	179,597	156,984	122,455	85,495	61,248	84,973	22,122	945
Other red oak	625,311	52,778	88,908	102,876	101,580	82,600	74,094	43,964	29,805	19,182	25,079	4,445	--
Select hickory	113,434	15,804	23,598	22,222	22,217	13,722	8,282	4,346	2,063	609	571	--	--
Other hickory	80,472	35,109	19,327	9,102	10,300	3,784	1,641	705	253	--	251	--	--
Basswood	835,765	80,322	154,472	186,725	145,415	102,206	60,489	39,864	23,420	16,769	18,920	6,300	863
Beech	28,707	1,057	2,637	2,377	4,347	4,101	3,150	4,598	2,323	2,017	2,100	--	--
Yellow birch	207,564	19,816	31,097	37,029	30,178	26,230	21,239	19,246	9,062	5,712	6,271	1,684	--
Hard maple	1,494,611	294,142	299,877	221,980	170,347	134,764	115,036	89,242	61,226	42,178	53,296	12,231	292
Soft maple	1,219,528	358,980	295,040	202,043	122,251	86,251	52,394	36,988	21,930	14,903	19,287	8,075	1,386
Elm	434,129	33,220	56,825	74,562	76,945	59,486	49,226	31,307	17,115	10,797	17,256	6,376	1,014
Black ash	426,864	145,588	109,323	79,453	47,616	21,525	14,044	5,419	1,800	1,486	610	--	--
White & green ash	310,499	39,604	51,940	66,009	57,431	38,773	26,871	13,485	6,662	2,299	5,965	1,460	--
Cottonwood	32,668	400	953	1,255	3,857	6,623	1,082	3,267	3,193	1,084	1,959	6,379	2,616
Willow	24,200	527	1,501	2,191	3,796	2,518	3,443	5,038	1,830	1,000	2,063	293	--
Hackberry	2,478	269	256	--	796	769	--	--	--	--	388	--	--
Balsam poplar	39,414	4,551	5,895	6,275	5,129	9,425	4,052	690	1,546	1,504	181	166	--
Bigtooth aspen	686,786	71,141	134,620	177,903	160,696	79,940	40,831	15,888	3,398	1,585	553	231	--
Quaking aspen	1,938,487	388,802	524,694	481,407	304,928	152,687	62,121	18,070	4,415	1,057	306	--	--
Paper birch	1,046,686	318,687	355,167	215,487	100,012	40,153	13,128	2,988	772	158	134	--	--
River birch	8,646	1,191	1,602	1,637	1,369	675	892	--	714	343	223	--	--
Black cherry	164,017	41,699	35,905	39,064	18,874	16,151	5,151	4,221	1,795	336	821	--	--
Black walnut	22,609	1,978	2,288	3,435	4,246	4,986	1,166	2,916	696	657	241	--	--
Butternut	38,952	2,369	8,517	5,713	7,128	5,778	5,218	2,195	1,001	235	549	249	--
Other hardwoods	26,145	8,163	6,573	4,671	2,805	2,598	221	457	657	--	--	--	--
Total	11,859,877	2,072,111	2,447,735	2,236,559	1,717,109	1,165,159	796,995	523,369	319,734	214,698	275,219	81,253	9,936
All species	15,498,185	2,896,525	3,309,157	2,857,941	2,129,314	1,414,299	992,020	686,355	425,535	289,080	378,799	108,728	10,432

Table 17.--Net volume of sawtimber on timberland by species group and diameter class, Wisconsin, 1983

(In thousand board feet)[1/]

Species group	All classes	Diameter class (inches at breast height) 9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-28.9	29.0-38.9	39.0+
Softwoods											
Jack pine	1,069,425	614,842	331,959	94,390	25,945	1,364	925	--	--	--	--
Red pine	1,997,086	683,569	427,496	229,051	222,434	211,224	121,834	65,774	35,704	--	--
White pine	2,666,253	181,392	269,342	332,735	357,697	386,014	314,620	251,808	420,250	149,295	3,100
White spruce	606,863	193,155	157,695	114,896	70,699	36,495	12,677	12,618	8,628	--	--
Black spruce	101,796	66,752	23,789	4,529	5,890	836	--	--	--	--	--
Balsam fir	1,031,536	556,056	283,477	104,265	77,960	8,704	1,074	--	--	--	--
Hemlock	1,130,685	116,503	153,568	182,781	165,446	183,978	113,915	78,166	120,926	15,402	--
Tamarack	193,864	95,291	64,831	18,099	6,406	7,379	1,858	--	--	--	--
Eastern redcedar	4,843	2,166	--	943	1,734	--	--	--	--	--	--
Northern white-cedar	1,118,865	461,306	330,413	181,738	86,408	36,467	12,491	6,410	3,632	--	--
Other softwoods	7,630	773	5,185	--	1,672	--	--	--	--	--	--
Total	9,928,846	2,971,805	2,047,755	1,263,427	1,022,291	872,461	579,394	414,776	589,140	164,697	3,100
Hardwoods											
White oak	2,230,778	--	547,335	464,666	381,770	275,608	187,934	143,329	161,257	54,998	13,881
Select red oak	4,555,263	--	1,046,216	866,537	761,430	600,122	422,963	306,281	431,742	114,966	5,006
Other red oak	1,817,970	--	483,256	390,234	351,422	210,024	143,515	93,200	123,840	22,479	--
Select hickory	272,089	--	123,459	70,741	41,159	21,023	10,028	2,910	2,769	--	--
Other hickory	86,411	--	53,917	18,744	7,924	3,431	1,207	--	1,188	--	--
Basswood	1,991,915	--	685,154	485,950	291,748	195,147	116,180	83,918	96,371	32,801	4,646
Beech	117,188	--	23,377	21,512	15,959	23,464	11,790	10,255	10,831	--	--
Yellow birch	561,730	--	122,373	118,456	102,120	96,724	47,215	30,551	34,618	9,673	--
Hard maple	3,384,420	--	806,569	655,307	573,408	454,175	317,375	221,872	286,362	67,680	1,672
Soft maple	1,859,236	--	680,246	443,640	256,300	175,251	102,419	69,134	88,672	37,142	6,432
Elm	1,182,708	--	325,061	255,502	216,264	139,920	78,083	49,971	81,684	31,142	5,081
Black ash	549,728	--	300,582	124,830	76,187	28,332	9,275	7,456	3,066	--	--
White & green ash	813,179	--	331,457	204,301	134,648	65,668	31,897	10,843	27,637	6,728	--
Cottonwood	130,777	--	15,930	26,857	4,486	13,793	13,722	4,810	8,861	29,716	12,602
Willow	84,501	--	15,803	10,288	14,202	21,311	7,911	4,357	9,284	1,345	--
Hackberry	8,473	--	3,283	3,358	--	--	--	--	1,832	--	--
Balsam poplar	99,922	--	20,696	40,746	18,580	3,281	7,438	7,412	909	860	--
Bigtooth aspen	1,385,402	--	714,583	370,774	193,901	77,366	16,805	7,921	2,827	1,225	--
Quaking aspen	2,655,293	--	1,433,226	765,494	326,058	98,113	24,594	6,016	1,792	--	--
Paper birch	791,454	--	493,152	206,326	69,771	16,252	4,292	890	771	--	--
River birch	19,495	--	6,297	3,136	4,088	--	3,308	1,606	1,060	--	--
Black cherry	262,572	--	111,295	88,494	26,675	21,428	8,972	1,622	4,086	--	--
Black walnut	84,770	--	26,662	28,400	6,210	15,388	3,616	3,289	1,205	--	--
Butternut	123,867	--	42,483	32,103	27,555	11,293	5,242	1,189	2,775	1,227	--
Other hardwoods	37,426	--	15,548	14,310	1,235	2,561	3,772	--	--	--	--
Total	25,106,567	--	8,427,960	5,710,706	3,903,100	2,569,675	1,579,553	1,068,832	1,385,439	411,982	49,320
All species	35,035,413	2,971,805	10,475,715	6,974,133	4,925,391	3,442,136	2,158,947	1,483,608	1,974,579	576,679	52,420

[1/] International 1/4-inch rule.

Table 18.--Net volume of live trees and growing stock on timberland by ownership class and species group, Wisconsin, 1983

(In thousand cubic feet)

Ownership class	Live trees: All species	Pine	Other softwoods	Soft hardwoods	Hard hardwoods	Growing stock: All species	Pine	Other softwoods	Soft hardwoods	Hard hardwoods
National Forest	1,636,004	238,238	321,167	636,778	439,821	1,546,274	231,586	304,806	601,581	408,301
Miscellaneous federal	168,597	40,837	1,027	81,994	44,739	137,813	38,825	1,027	67,319	30,642
State	613,039	107,349	74,276	278,968	152,446	540,669	103,566	70,387	243,983	122,733
County and municipal	2,346,121	305,483	281,312	1,241,326	518,000	2,078,483	290,407	263,349	1,107,905	416,822
Indian	671,409	115,459	137,959	228,695	189,296	633,759	110,520	133,419	210,387	179,433
Forest industry	1,368,907	146,714	235,617	560,358	426,218	1,239,393	140,199	221,211	506,403	371,580
Farmer	4,436,271	285,418	217,939	1,760,027	2,172,887	3,658,742	276,154	201,770	1,461,915	1,718,903
Misc. private-corp.	830,383	93,451	79,640	367,938	289,354	710,598	86,372	74,383	319,884	229,959
Misc. private-indiv.	5,676,539	620,250	535,691	2,652,168	1,868,430	4,952,454	590,355	499,972	2,361,816	1,500,311
All owners	17,747,270	1,953,199	1,884,628	7,808,252	6,101,191	15,498,185	1,867,984	1,770,324	6,881,193	4,978,684

Table 19.--Net volume of growing stock on timberland by species group and forest type, Wisconsin, 1983

(In thousand cubic feet)

Species group	All types	Forest type							
		Jack pine	Red pine	White pine	Balsam fir	White spruce	Black spruce	Northern white-cedar	Tamarack
Softwoods									
Jack pine	536,333	372,104	21,980	11,844	237	--	366	417	331
Red pine	763,226	20,618	588,740	39,506	4,892	417	3,353	163	496
White pine	565,605	8,014	42,851	217,530	14,757	2,356	3,424	9,573	6,538
White spruce	199,628	--	2,515	4,680	26,796	83,198	641	6,246	558
Black spruce	123,955	413	1,873	3,243	19,002	367	55,316	16,879	7,715
Balsam fir	553,038	80	3,851	7,170	180,454	2,640	20,416	37,002	6,897
Hemlock	283,898	--	1,074	2,637	6,270	131	2,346	12,117	79
Tamarack	133,877	--	--	1,217	5,324	--	11,733	14,166	71,850
Eastern redcedar	3,973	214	--	--	--	--	--	--	--
Northern white-cedar	471,544	--	587	2,158	42,281	1,036	5,541	290,468	1,383
Other softwoods	3,231	--	1,722	596	--	--	--	--	--
Total	3,638,308	401,443	665,193	290,581	300,013	90,145	103,136	387,031	95,847
Hardwoods									
White oak	632,216	753	368	3,260	77	--	--	184	--
Select red oak	1,419,689	4,527	7,279	3,466	641	--	1,017	331	120
Other red oak	625,311	13,600	6,131	7,079	99	--	75	276	--
Select hickory	113,434	--	--	334	--	--	--	197	--
Other hickory	80,472	--	--	--	--	--	--	397	--
Basswood	835,765	--	209	837	167	299	--	1,215	--
Beech	28,707	--	418	--	--	--	--	--	--
Yellow birch	207,564	--	144	370	5,153	--	432	10,633	221
Hard maple	1,494,611	--	2,360	1,859	2,362	398	233	248	105
Soft maple	1,219,528	432	5,214	10,168	12,754	688	1,678	7,454	3,419
Elm	434,129	307	1,358	639	2,099	150	--	2,319	636
Black ash	426,864	--	--	1,161	12,478	174	--	18,169	483
White & green ash	310,499	--	1,421	--	116	837	--	446	--
Cottonwood	32,668	98	--	4,887	--	--	--	--	--
Willow	24,200	--	--	--	--	--	--	438	--
Hackberry	2,478	--	--	--	--	--	--	--	--
Balsam poplar	39,414	--	--	--	1,392	325	200	1,037	--
Bigtooth aspen	686,786	4,140	3,380	4,596	1,595	185	1,037	1,250	3,295
Quaking aspen	1,938,487	14,361	21,469	29,130	34,620	4,413	12,736	12,014	4,489
Paper birch	1,046,686	2,019	5,883	9,480	21,469	522	3,805	18,015	5,459
River birch	8,646	--	--	--	--	--	--	--	--
Black cherry	164,017	--	404	1,242	766	113	151	--	--
Black walnut	22,609	--	--	--	--	--	--	--	--
Butternut	38,952	--	--	--	--	--	--	--	--
Other hardwoods	26,145	--	581	--	--	--	--	--	--
Total	11,859,877	40,237	56,619	78,508	95,788	8,104	21,364	74,623	18,227
All species	15,498,185	441,680	721,812	369,089	395,801	98,249	124,500	461,654	114,074

(Table 19 continued on next page)

(Table 19 continued)

Species group	Forest type						
	Oak-hickory	Elm-ash-soft maple	Maple-birch	Aspen	Paper birch	Exotic	Non-stocked
Softwoods							
Jack pine	73,808	1,208	5,577	43,668	3,363	--	1,430
Red pine	26,483	643	16,309	47,230	14,376	--	--
White pine	46,125	23,586	130,134	44,758	15,763	--	196
White spruce	445	7,737	19,974	36,059	10,578	--	201
Black spruce	--	2,721	3,166	10,492	2,768	--	--
Balsam fir	1,191	51,343	107,962	101,446	32,513	--	73
Hemlock	1,161	17,614	232,214	5,163	3,092	--	--
Tamarack	562	12,111	4,934	7,813	3,121	--	1,046
Eastern redcedar	2,063	1,277	419	--	--	--	--
Northern white-cedar	238	49,374	54,710	14,502	9,266	--	--
Other softwoods	287	--	70	--	--	556	--
Total	152,363	167,614	575,469	311,131	94,840	556	2,946
Hardwoods							
White oak	489,145	19,715	78,529	29,057	9,434	--	1,694
Select red oak	922,648	17,446	287,090	121,880	52,592	--	652
Other red oak	515,727	8,842	26,575	40,787	3,103	--	3,017
Select hickory	92,249	207	16,709	333	3,405	--	--
Other hickory	38,557	673	38,366	2,479	--	--	--
Basswood	72,711	29,290	698,273	25,398	6,547	--	819
Beech	299	554	27,436	--	--	--	--
Yellow birch	1,007	19,189	163,473	4,129	2,813	--	--
Hard maple	51,853	15,421	1,355,943	48,642	15,086	--	101
Soft maple	101,917	289,212	540,897	195,857	49,727	--	111
Elm	48,467	94,293	255,712	21,388	5,633	--	1,128
Black ash	8,409	260,341	92,375	26,272	6,097	--	905
White & green ash	27,301	71,982	191,697	11,986	4,533	--	180
Cottonwood	6,972	12,392	4,733	3,353	233	--	--
Willow	--	18,109	3,247	1,767	386	--	253
Hackberry	921	581	976	--	--	--	--
Balsam poplar	1,156	6,294	4,334	22,837	1,839	--	--
Bigtooth aspen	145,677	4,555	100,142	388,571	28,363	--	--
Quaking aspen	89,567	62,761	273,905	1,293,698	82,300	--	3,024
Paper birch	111,849	40,176	202,323	265,809	358,814	--	1,063
River birch	1,116	7,530	--	--	--	--	--
Black cherry	57,727	3,058	73,195	24,323	3,038	--	--
Black walnut	17,986	--	4,167	--	--	--	456
Butternut	17,002	243	19,306	1,837	311	--	253
Other hardwoods	3,876	10,503	10,442	594	149	--	--
Total	2,824,139	993,367	4,469,845	2,530,997	634,403	--	13,656
All species	2,976,502	1,160,981	5,045,314	2,842,128	729,243	556	16,602

Table 20.--Net volume of sawtimber on timberland by species group and forest type, Wisconsin, 1983

(In thousand board feet)[1/]

Species group	All types	Forest type							
		Jack pine	Red pine	White pine	Balsam fir	White spruce	Black spruce	Northern white-cedar	Tamarack
Softwoods									
Jack pine	1,069,425	640,234	43,565	36,157	1,258	--	710	--	--
Red pine	1,997,086	79,464	1,226,095	175,853	25,884	--	17,844	911	2,846
White pine	2,666,253	32,108	172,307	1,003,904	74,808	12,618	12,424	44,300	28,493
White spruce	606,863	--	8,743	22,215	93,320	188,087	2,603	19,902	1,811
Black spruce	101,796	488	--	4,406	22,260	767	27,767	19,552	5,917
Balsam fir	1,031,536	--	6,167	17,920	316,487	5,301	72,294	28,539	2,756
Hemlock	1,130,685	--	2,339	10,464	25,008	648	9,825	43,089	339
Tamarack	193,864	--	--	2,799	11,916	--	4,223	20,094	64,873
Eastern redcedar	4,843	1,272	--	--	--	--	--	--	--
Northern white-cedar	1,118,865	--	1,916	9,149	123,315	--	14,805	579,374	1,693
Other softwoods	7,630	--	6,238	1,392	--	--	--	--	--
Total	9,928,846	753,566	1,467,370	1,284,259	694,256	207,421	162,495	755,761	108,728
Hardwoods									
White oak	2,230,778	--	2,079	9,108	--	--	--	1,004	--
Select red oak	4,555,263	9,787	8,884	11,485	2,683	--	1,401	1,703	595
Other red oak	1,817,970	29,514	16,400	18,642	--	--	411	1,388	--
Select hickory	272,089	--	--	--	--	--	--	1,146	--
Other hickory	86,411	--	--	--	--	--	--	1,188	--
Basswood	1,991,915	--	960	2,255	855	--	--	5,284	--
Beech	117,188	--	1,110	--	--	--	--	--	--
Yellow birch	561,730	--	611	1,307	17,925	--	1,772	27,955	629
Hard maple	3,384,420	--	1,629	7,033	4,952	1,507	698	1,330	--
Soft maple	1,859,236	--	1,084	20,087	13,112	2,016	2,106	11,348	3,917
Elm	1,182,708	1,357	--	1,825	6,583	663	--	6,817	1,838
Black ash	549,728	--	--	5,002	12,729	1,011	--	12,672	--
White & green ash	813,179	--	7,302	--	--	--	--	2,448	--
Cottonwood	130,777	--	--	19,577	--	--	--	--	--
Willow	84,501	--	--	--	--	--	--	1,896	--
Hackberry	8,473	--	--	--	--	--	--	--	--
Balsam poplar	99,922	--	--	--	626	705	--	2,999	--
Bigtooth aspen	1,385,402	3,805	4,677	5,812	1,006	--	4,236	2,085	3,319
Quaking aspen	2,655,293	9,571	29,442	40,106	49,346	5,246	23,591	21,214	2,170
Paper birch	791,454	1,655	8,171	17,575	15,797	--	3,747	15,506	3,529
River birch	19,495	--	--	--	--	--	--	--	--
Black cherry	262,572	--	1,147	--	2,578	752	--	--	--
Black walnut	84,770	--	--	--	--	--	--	--	--
Butternut	123,867	--	--	--	--	--	--	--	--
Other hardwoods	37,426	--	3,128	--	--	--	--	--	--
Total	25,106,567	55,689	86,624	159,814	128,192	11,900	37,962	117,983	15,997
All species	35,035,413	809,255	1,553,994	1,444,073	822,448	219,321	200,457	873,744	124,725

(Table 20 continued on the next page)

[1/] International 1/4-inch rule.

(Table 20 continued)

Species group	Forest type						
	Oak-hickory	Elm-ash-soft maple	Maple-birch	Aspen	Paper birch	Exotic	Non-stocked
Softwoods							
Jack pine	185,144	4,293	17,634	128,189	11,457	--	784
Red pine	82,188	3,685	83,787	218,299	80,230	--	--
White pine	219,600	112,575	661,760	220,769	69,693	--	894
White spruce	--	30,333	90,146	115,384	33,258	--	1,061
Black spruce	--	8,070	6,378	5,418	773	--	--
Balsam fir	· 556	90,621	246,825	182,410	61,660	--	--
Hemlock	5,018	52,194	949,552	21,031	11,178	--	--
Tamarack	2,251	46,212	9,417	22,457	5,585	--	4,037
Eastern redcedar	1,734	--	1,837	--	--	--	--
Northern white-cedar	--	135,254	199,877	28,623	24,859	--	--
Other softwoods	--	--	--	--	--	--	--
Total	496,491	483,237	2,267,213	942,580	298,693	--	6,776
Hardwoods							
White oak	1,744,390	72,121	300,314	66,687	29,984	--	5,091
Select red oak	3,093,602	63,952	978,223	230,071	149,533	--	3,344
Other red oak	1,491,354	33,407	97,945	113,120	10,244	--	5,545
Select hickory	211,791	985	48,221	--	9,946	--	--
Other hickory	36,631	--	47,557	1,035	--	--	--
Basswood	191,283	67,016	1,673,290	38,928	10,422	--	1,622
Beech	--	1,042	115,036	--	--	--	--
Yellow birch	2,298	43,568	455,950	4,787	4,928	--	--
Hard maple	138,380	19,058	3,167,909	25,985	15,939	--	--
Soft maple	151,249	727,650	810,001	84,325	32,341	--	--
Elm	128,936	283,588	687,254	50,671	9,740	--	3,436
Black ash	14,713	364,880	120,618	11,261	6,842	--	--
White & green ash	61,490	231,850	483,256	15,993	9,766	--	1,074
Cottonwood	27,697	52,183	19,789	10,466	1,065	--	--
Willow	--	64,707	12,967	2,278	1,631	--	1,022
Hackberry	3,841	2,340	2,292	--	--	--	--
Balsam poplar	4,483	18,133	17,631	52,638	2,707	--	--
Bigtooth aspen	347,769	14,793	227,912	695,225	74,763	--	--
Quaking aspen	127,030	100,856	579,951	1,531,421	134,022	--	1,327
Paper birch	78,513	47,416	225,213	129,239	245,093	--	--
River birch	3,733	15,762	--	--	--	--	--
Black cherry	97,679	1,997	123,399	31,396	3,624	--	--
Black walnut	71,246	--	12,247	--	--	--	1,277
Butternut	50,703	1,345	63,926	7,893	--	--	--
Other hardwoods	7,304	15,940	10,146	908	--	--	--
Total	8,086,115	2,244,589	10,281,047	3,104,327	752,590	--	23,738
All species	8,582,606	2,727,826	12,548,260	4,046,907	1,051,283	--	30,514

Table 21.--Net volume of growing stock on timberland by species group and ownership class, Wisconsin, 1983

(In thousand cubic feet)

Species group	All owners	Ownership class								
		National Forest	Misc. federal	State	County & municipal	Indian	Forest industry	Farmer	Misc. priv.-corp.	Misc. priv.-indiv.
Softwoods										
Jack pine	536,333	67,884	20,571	30,964	108,184	9,488	58,530	59,147	18,696	162,869
Red pine	763,226	119,247	8,932	44,887	127,627	19,259	50,874	99,180	43,218	250,002
White pine	565,605	44,455	9,322	27,715	54,596	81,773	30,795	116,803	24,319	175,827
White spruce	199,628	87,585	200	8,167	28,388	352	20,372	8,801	7,146	38,617
Black spruce	123,955	20,989	--	9,574	22,803	8,184	19,217	6,569	1,877	34,742
Balsam fir	553,038	69,408	--	22,782	121,758	14,739	70,706	39,844	28,082	185,719
Hemlock	283,898	44,165	--	5,476	18,883	74,560	52,844	29,876	16,734	41,360
Tamarack	133,877	11,320	827	6,970	14,723	1,218	9,993	23,117	5,472	60,237
Eastern redcedar	3,973	--	--	--	--	--	--	3,052	--	921
Northern white-cedar	471,544	71,339	--	17,077	56,794	34,366	48,079	90,511	15,072	138,306
Other softwoods	3,231	--	--	341	--	--	--	1,024	139	1,727
Total	3,638,308	536,392	39,852	173,953	553,756	243,939	361,410	477,924	160,755	1,090,327
Hardwoods										
White oak	632,216	2,824	3,195	17,575	21,700	3,318	2,956	340,548	26,620	213,480
Select red oak	1,419,689	101,229	9,846	38,069	135,792	44,289	55,580	558,271	56,168	420,445
Other red oak	625,311	104	13,446	19,658	53,179	4,119	10,142	250,527	31,809	242,327
Select hickory	113,434	--	--	1,249	--	--	332	71,331	8,555	31,967
Other hickory	80,472	1,206	--	597	2,285	1,993	5,326	45,860	3,955	19,250
Basswood	835,765	110,491	213	12,981	119,142	44,602	104,781	161,873	28,646	253,036
Beech	28,707	--	--	--	--	8,369	974	12,309	1,975	5,080
Yellow birch	207,564	40,789	--	4,744	21,011	22,519	43,876	21,194	13,441	39,990
Hard maple	1,494,611	237,815	770	32,029	153,942	86,744	219,920	275,298	70,976	417,117
Soft maple	1,219,528	105,573	29,446	47,638	188,988	34,425	95,276	270,631	45,507	402,044
Elm	434,129	20,054	1,137	15,454	43,728	9,997	39,905	136,703	16,905	150,246
Black ash	426,864	30,626	1,161	18,261	77,500	6,786	38,330	91,029	14,397	148,774
White & green ash	310,499	20,344	2,743	6,163	25,751	6,980	28,685	117,160	13,642	89,031
Cottonwood	32,668	--	3,132	1,161	1,566	--	269	14,331	6,123	6,086
Willow	24,200	--	2,322	2,094	524	--	616	12,072	2,915	3,657
Hackberry	2,478	--	--	--	--	--	--	1,399	110	969
Balsam poplar	39,414	2,740	--	1,199	10,701	239	1,446	9,305	1,220	12,564
Bigtooth aspen	686,786	77,519	5,183	19,965	95,486	25,445	22,368	170,474	33,228	237,118
Quaking aspen	1,938,487	157,889	20,689	73,967	384,709	58,309	125,540	309,739	91,474	716,171
Paper birch	1,046,686	88,337	3,893	47,477	175,059	29,229	71,492	187,305	67,579	376,315
River birch	8,646	--	642	1,172	126	--	--	2,235	2,435	2,036
Black cherry	164,017	11,493	--	4,445	12,403	1,108	8,744	69,901	7,666	48,257
Black walnut	22,609	--	--	--	510	--	--	14,643	383	7,073
Butternut	38,952	849	--	335	488	1,245	1,425	20,516	4,114	9,980
Other hardwoods	26,145	--	143	483	137	104	--	16,164	--	9,114
Total	11,859,877	1,009,882	97,961	366,716	1,524,727	389,820	877,983	3,180,818	549,843	3,862,127
All species	15,498,185	1,546,274	137,813	540,669	2,078,483	633,759	1,239,393	3,658,742	710,598	4,952,454

Table 22.--Net volume of sawtimber on timberland by species group and ownership class, Wisconsin, 1983

(In thousand board feet)[1/]

Species group	All owners	Ownership class: National Forest	Misc. federal	State	County & municipal	Indian	Forest industry	Farmer	Misc. priv.-corp.	Misc. priv.-indiv.
Softwoods										
Jack pine	1,069,425	111,175	51,002	69,891	175,710	33,881	81,145	152,556	57,652	336,413
Red pine	1,997,086	483,109	33,546	131,438	314,462	95,035	143,090	198,062	74,969	523,375
White pine	2,666,253	215,656	39,272	125,370	265,569	433,998	139,642	548,274	119,740	778,732
White spruce	606,863	207,937	665	27,241	107,672	857	76,145	34,483	24,721	127,142
Black spruce	101,796	14,500	--	3,433	25,639	6,898	16,817	5,541	2,992	25,976
Balsam fir	1,031,536	172,186	--	31,981	225,689	23,758	168,090	60,735	42,435	306,662
Hemlock	1,130,685	183,575	--	19,800	73,379	318,637	227,462	92,863	65,850	149,119
Tamarack	193,864	5,745	1,567	18,533	17,218	4,636	12,337	39,072	14,597	80,159
Eastern redcedar	4,843	--	--	--	--	--	--	3,949	--	894
Northern white-cedar	1,118,865	149,420	--	54,491	159,598	108,312	160,787	146,996	35,482	303,779
Other softwoods	7,630	--	--	--	--	--	--	4,573	773	2,284
Total	9,928,846	1,543,303	126,052	482,178	1,364,936	1,026,012	1,025,515	1,287,104	439,211	2,634,535
Hardwoods										
White oak	2,230,778	--	9,868	71,494	39,878	9,825	7,703	1,278,010	90,267	723,733
Select red oak	4,555,263	124,629	17,730	104,167	269,960	154,406	150,174	2,202,228	192,721	1,339,248
Other red oak	1,817,970	--	24,737	55,171	103,816	15,419	22,754	847,373	77,838	670,862
Select hickory	272,089	--	--	2,279	--	--	--	162,070	28,950	78,790
Other hickory	86,411	2,550	--	1,710	767	3,829	5,822	47,614	2,447	21,672
Basswood	1,991,915	215,190	--	26,364	205,704	146,318	214,488	530,781	71,521	581,549
Beech	117,188	--	--	--	--	32,273	3,868	56,015	10,747	14,285
Yellow birch	561,730	102,203	--	17,995	66,431	66,113	146,736	39,719	34,713	87,820
Hard maple	3,384,420	327,392	3,571	75,924	209,366	285,988	524,698	903,281	140,936	913,264
Soft maple	1,859,236	145,187	76,554	99,466	191,663	42,129	120,326	620,662	52,245	511,004
Elm	1,182,708	46,487	2,770	44,654	117,948	36,592	109,240	366,875	40,754	417,388
Black ash	549,728	25,426	967	33,415	100,264	15,291	58,133	115,540	22,635	178,057
White & green ash	813,179	58,420	11,627	18,029	63,763	9,206	91,110	293,557	33,707	233,760
Cottonwood	130,777	--	13,246	4,567	7,387	--	1,239	58,732	22,319	23,287
Willow	84,501	--	9,691	6,656	1,591	--	2,570	42,783	8,641	12,569
Hackberry	8,473	--	--	--	--	--	--	4,632	--	3,841
Balsam poplar	99,922	6,199	--	3,322	24,766	--	4,493	26,178	2,585	32,379
Bigtooth aspen	1,385,402	125,828	5,356	43,468	130,059	50,586	45,836	426,967	69,138	488,164
Quaking aspen	2,655,293	239,029	14,388	90,316	476,808	105,094	196,730	437,009	117,694	978,225
Paper birch	791,454	64,920	913	34,814	98,602	31,694	65,213	149,221	53,943	292,134
River birch	19,495	--	2,967	2,202	--	--	--	8,153	970	5,203
Black cherry	262,572	25,482	--	5,829	12,331	2,886	9,429	118,792	16,483	71,340
Black walnut	84,770	--	--	--	3,408	--	--	50,547	2,311	28,504
Butternut	123,867	4,839	--	1,803	996	3,866	6,465	66,438	13,345	26,115
Other hardwoods	37,426	--	--	1,851	799	577	--	25,060	--	9,139
Total	25,106,567	1,513,781	194,385	745,496	2,126,307	1,012,092	1,787,027	8,878,237	1,106,910	7,742,332
All species	35,035,413	3,057,084	320,437	1,227,674	3,491,243	2,038,104	2,812,542	10,165,341	1,546,121	10,376,867

[1/] International 1/4-inch rule.

Table 23.--Net volume of growing stock on timberland by forest type and stand-age class, Wisconsin, 1983

(In thousand cubic feet)

Forest type	All classes	Stand-age class (years) 1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80
Jack pine	441,680	4,994	25,061	39,500	114,909	161,553	68,536	9,669	14,560
Red pine	721,812	4,255	70,390	207,740	194,256	108,425	50,799	14,799	19,290
White pine	369,089	4,649	11,564	13,815	17,896	39,964	29,520	42,672	71,694
Balsam fir	395,801	19,736	14,827	23,666	36,282	66,999	114,922	62,097	17,374
White spruce	98,249	373	4,688	18,454	41,587	10,288	16,742	6,117	--
Black spruce	124,500	4,416	8,027	15,587	8,700	14,388	9,752	10,208	37,985
Northern white-cedar	461,654	2,453	9,605	9,270	6,047	51,467	45,671	55,318	37,506
Tamarack	114,074	7,028	8,954	9,245	8,158	18,514	14,078	18,281	14,658
Oak-hickory	2,976,502	91,042	40,040	49,756	108,020	385,059	562,850	304,874	365,620
Elm-ash-soft maple	1,160,981	39,085	37,273	56,749	108,191	152,560	132,534	153,102	173,547
Maple-birch	5,045,314	92,082	128,574	162,001	298,472	806,595	970,200	750,001	362,517
Aspen	2,842,128	166,063	149,627	190,336	485,848	901,868	578,719	211,645	93,656
Paper birch	729,243	15,366	29,698	42,609	111,584	186,816	190,041	122,357	25,368
Exotic	556	--	556	--	--	--	--	--	--
Nonstocked	16,602	16,602	--	--	--	--	--	--	--
All types	15,498,185	468,144	538,884	838,728	1,539,950	2,904,496	2,784,364	1,761,140	1,233,775

(Table 23 continued)

(Table 23 continued)

Forest type	Stand-age class 81-90	91-100	101-120	121-140	141+
Jack pine	2,898	--	--	--	--
Red pine	18,597	24,714	8,547	--	--
White pine	53,626	4,552	23,443	20,741	34,953
Balsam fir	16,102	3,302	12,716	6,259	1,519
White spruce	--	--	--	--	--
Black spruce	12,072	2,996	--	369	--
Northern white-cedar	35,599	85,070	40,991	40,770	41,887
Tamarack	9,749	--	2,957	1,474	978
Oak-hickory	297,881	246,845	259,977	173,875	90,663
Elm-ash-soft maple	107,828	86,297	64,116	33,375	16,324
Maple-birch	376,883	307,316	334,786	194,434	261,453
Aspen	55,819	8,547	--	--	--
Paper birch	2,039	715	2,650	--	--
Exotic	--	--	--	--	--
Nonstocked	--	--	--	--	--
All types	989,093	770,354	750,183	471,297	447,777

Table 24.--Net volume of sawtimber on timberland by forest type and stand-age class, Wisconsin, 1983

(In thousand board feet)[1/]

Forest type	All classes	Stand-age class (years) 1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80
Jack pine	809,255	12,550	23,852	33,932	156,007	303,726	176,248	33,711	55,517
Red pine	1,553,994	17,590	43,253	111,543	410,765	386,841	195,355	57,521	91,263
White pine	1,444,073	20,024	9,086	45,086	46,852	130,909	98,896	151,103	308,878
Balsam fir	822,448	42,094	18,934	33,153	60,776	119,868	257,789	121,029	31,350
White spruce	219,321	--	8,290	13,869	109,525	20,983	39,796	26,858	--
Black spruce	200,457	3,301	11,082	18,883	7,442	8,990	7,106	8,641	107,634
Northern white-cedar	873,744	3,970	5,417	14,870	8,713	77,379	60,549	61,536	56,383
Tamarack	124,725	9,208	9,353	6,795	3,747	14,014	8,421	24,224	24,301
Oak-hickory	8,582,606	217,768	105,159	93,675	158,521	645,694	1,119,852	844,746	1,177,060
Elm-ash-soft maple	2,727,826	84,807	72,876	65,740	146,956	280,405	256,236	350,078	477,911
Maple-birch	12,548,260	171,838	293,983	273,461	447,291	1,206,295	1,794,440	1,761,811	1,089,255
Aspen	4,046,907	264,419	168,174	210,478	537,191	995,646	945,921	460,738	273,493
Paper birch	1,051,283	23,209	31,355	29,442	132,580	222,493	306,240	230,605	58,137
Exotic	--	--	--	--	--	--	--	--	--
Nonstocked	30,514	30,514	--	--	--	--	--	--	--
All types	35,035,413	901,292	800,814	950,927	2,226,366	4,413,243	5,266,849	4,132,601	3,751,182

(Table 24 continued)

[1/] International 1/4-inch rule.

(Table 24 continued)

Forest type	Stand-age class 81-90	91-100	101-120	121-140	141+
Jack pine	13,712	--	--	--	--
Red pine	87,132	115,020	37,711	--	--
White pine	231,856	22,932	99,053	95,442	183,956
Balsam fir	50,596	12,558	44,771	22,222	7,308
White spruce	--	--	--	--	--
Black spruce	17,841	8,333	--	1,204	--
Northern white-cedar	57,047	155,513	112,279	114,016	146,072
Tamarack	15,367	--	3,877	4,509	909
Oak-hickory	1,080,031	984,003	1,028,946	743,730	383,421
Elm-ash-soft maple	334,263	290,006	199,919	111,352	57,277
Maple-birch	1,272,304	1,118,408	1,252,909	779,352	1,086,913
Aspen	157,370	33,477	--	--	--
Paper birch	6,901	1,814	8,507	--	--
Exotic	--	--	--	--	--
Nonstocked	--	--	--	--	--
All types	3,324,420	2,742,064	2,787,972	1,871,827	1,865,856

Table 25.--Net volume of growing stock on timberland by forest type, stand-size class, and basal-area class, Wisconsin, 1983

(In thousand cubic feet)

Forest type and stand-size class	All classes	Basal-area class (square feet per acre)						
		0-10	11-20	21-30	31-40	41-50	51-60	61-70
Jack pine								
Sawtimber	108,406	--	--	--	3,702	1,847	8,151	9,316
Poletimber	289,223	--	--	--	3,103	5,472	13,142	15,311
Sapling & seedling	44,051	84	662	2,060	3,174	3,588	4,912	6,124
All stands	441,680	84	662	2,060	9,979	10,907	26,205	30,751
Red pine								
Sawtimber	307,287	--	--	--	1,655	2,017	1,542	--
Poletimber	392,761	--	--	--	--	480	3,158	3,712
Sapling & seedling	21,764	152	306	243	2,279	1,440	4,833	--
All stands	721,812	152	306	243	3,934	3,937	9,533	3,712
White pine								
Sawtimber	308,695	--	647	251	5,608	1,165	4,957	2,205
Poletimber	51,886	--	--	--	--	--	1,173	--
Sapling & seedling	8,508	--	--	--	--	281	3,691	--
All stands	369,089	--	647	251	5,608	1,446	9,821	2,205
Balsam fir								
Sawtimber	138,592	--	--	--	--	5,066	16,286	4,620
Poletimber	206,947	--	--	691	--	1,199	6,688	12,266
Sapling & seedling	50,262	104	892	2,694	1,824	6,263	6,259	9,790
All stands	395,801	104	892	3,385	1,824	12,528	29,233	26,676
White spruce								
Sawtimber	63,525	--	--	--	--	--	--	2,476
Poletimber	32,747	--	--	--	--	--	--	--
Sapling & seedling	1,977	--	--	373	--	304	1,148	--
All stands	98,249	--	--	373	--	304	1,148	2,476
Black spruce								
Sawtimber	6,226	--	369	--	--	--	--	3,044
Poletimber	83,890	--	--	1,241	--	--	4,315	5,439
Sapling & seedling	34,384	175	495	3,824	970	7,272	2,591	3,965
All stands	124,500	175	864	5,065	970	7,272	6,906	12,448
Northern white-cedar								
Sawtimber	178,435	--	--	--	--	2,702	304	2,045
Poletimber	264,608	--	--	--	--	--	1,710	--
Sapling & seedling	18,611	--	30	1,346	234	2,122	1,441	--
All stands	461,654	--	30	1,346	234	4,824	3,455	2,045

(Table 25 continued on next page)

(Table 25 continued)

Forest type and stand-size class	Basal-area class (square feet per acre)						
	71-80	81-90	91-100	101-120	121-150	151-180	181+
Jack pine							
Sawtimber	11,916	18,771	11,468	27,741	11,068	4,426	--
Poletimber	38,728	45,632	82,642	50,165	26,593	3,177	5,258
Sapling & seedling	21,874	1,573	--	--	--	--	--
All stands	72,518	65,976	94,110	77,906	37,661	7,603	5,258
Red pine							
Sawtimber	8,525	14,173	17,245	89,447	80,202	71,431	21,050
Poletimber	10,254	27,530	11,567	67,808	86,656	54,744	126,852
Sapling & seedling	4,643	2,452	255	2,974	2,187	--	--
All stands	23,422	44,155	29,067	160,229	169,045	126,175	147,902
White pine							
Sawtimber	9,997	17,421	17,970	77,999	76,942	52,178	41,355
Poletimber	3,334	5,994	7,419	13,207	11,821	8,938	--
Sapling & seedling	4,536	--	--	--	--	--	--
All stands	17,867	23,415	25,389	91,206	88,763	61,116	41,355
Balsam fir							
Sawtimber	8,210	9,201	9,276	26,607	42,830	6,338	10,158
Poletimber	6,062	17,207	6,624	31,792	62,143	37,198	25,077
Sapling & seedling	12,569	1,213	4,375	1,740	1,167	1,372	--
All stands	26,841	27,621	20,275	60,139	106,140	44,908	35,235
White spruce							
Sawtimber	--	--	--	--	--	25,896	35,153
Poletimber	--	2,821	2,564	2,265	17,955	7,142	--
Sapling & seedling	152	--	--	--	--	--	--
All stands	152	2,821	2,564	2,265	17,955	33,038	35,153
Black spruce							
Sawtimber	--	--	--	--	2,813	--	--
Poletimber	8,187	6,282	28,293	9,141	18,540	2,452	--
Sapling & seedling	6,760	4,253	1,510	1,559	1,010	--	--
All stands	14,947	10,535	29,803	10,700	22,363	2,452	--
Northern white-cedar							
Sawtimber	6,093	7,745	2,748	10,415	38,652	41,289	66,442
Poletimber	5,648	7,226	2,407	43,757	33,008	86,650	84,202
Sapling & seedling	3,521	1,643	--	4,967	--	3,307	--
All stands	15,262	16,614	5,155	59,139	71,660	131,246	150,644

(Table 25 continued on next page)

(Table 25 continued)

Forest type and stand-size class	Basal-area class (square feet per acre)						
	71-80	81-90	91-100	101-120	121-150	151-180	181+
Tamarack							
Sawtimber	--	--	--	4,872	--	--	--
Poletimber	1,992	24,393	10,502	11,243	1,211	--	--
Sapling & seedling	6,902	890	3,401	--	--	--	--
All stands	8,894	25,283	13,903	16,115	1,211	--	--
Oak-hickory							
Sawtimber	157,183	221,750	160,402	515,996	455,742	146,359	22,192
Poletimber	83,354	124,183	112,925	227,997	205,484	97,266	11,666
Sapling & seedling	7,949	7,134	4,181	9,528	4,103	--	--
All stands	248,486	353,067	277,508	753,521	665,329	243,625	33,858
Elm-ash-soft maple							
Sawtimber	27,256	48,530	54,340	99,625	139,419	74,672	23,633
Poletimber	54,177	70,400	44,555	85,144	109,201	53,670	9,453
Sapling & seedling	8,449	6,575	5,971	2,314	3,006	--	--
All stands	89,882	125,505	104,866	187,083	251,626	128,342	33,086
Maple-birch							
Sawtimber	133,637	189,535	173,803	555,608	796,307	377,561	100,844
Poletimber	139,111	274,771	175,617	609,334	654,125	255,793	53,054
Sapling & seedling	35,381	29,778	11,303	35,612	7,030	5,050	--
All stands	308,129	494,084	360,723	1,200,554	1,457,462	638,404	153,898
Aspen							
Sawtimber	36,648	62,777	43,964	105,352	171,344	38,545	27,704
Poletimber	162,104	250,419	187,834	371,517	434,289	142,357	36,355
Sapling & seedling	50,050	32,429	15,060	10,921	1,962	805	--
All stands	248,802	345,625	246,858	487,790	607,595	181,707	64,059
Paper birch							
Sawtimber	7,736	12,170	3,826	21,773	21,811	12,648	8,815
Poletimber	36,857	36,956	36,472	111,265	195,760	82,634	9,772
Sapling & seedling	4,847	7,032	3,593	5,638	2,466	--	--
All stands	49,440	56,158	43,891	138,676	220,037	95,282	18,587
Exotic							
Sawtimber	--	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--	--
Sapling & seedling	556	--	--	--	--	--	--
All stands	556	--	--	--	--	--	--
Nonstocked	1,463	--	2,217	589	914	--	--
All types							
Sawtimber	407,201	602,073	495,042	1,535,435	1,837,130	851,343	357,346
Poletimber	549,808	893,814	709,421	1,634,635	1,856,786	832,021	361,689
Sapling & seedling	168,189	94,972	49,649	75,253	22,931	10,534	--
Nonstocked	1,463	--	2,217	589	914	--	--
All stands	1,126,661	1,590,859	1,256,329	3,245,912	3,717,761	1,693,898	719,035

(Table 25 continued)

Forest type and stand-size class	All classes	Basal-area class (square feet per acre) 0-10	11-20	21-30	31-40	41-50	51-60	61-70
Tamarack								
Sawtimber	11,554	--	380	2,138	--	1,089	1,601	1,474
Poletimber	74,609	--	251	882	1,199	6,066	6,103	10,767
Sapling & seedling	27,911	208	842	1,947	3,035	3,519	5,041	2,126
All stands	114,074	208	1,473	4,967	4,234	10,674	12,745	14,367
Oak-hickory								
Sawtimber	1,884,950	--	709	5,984	11,115	38,535	56,682	92,301
Poletimber	948,482	--	--	1,284	4,296	3,430	43,846	32,751
Sapling & seedling	143,070	596	3,997	17,290	17,328	25,598	30,571	14,795
All stands	2,976,502	596	4,706	24,558	32,739	67,563	131,099	139,847
Elm-ash-soft maple								
Sawtimber	536,724	--	1,074	5,550	8,180	11,736	29,135	13,574
Poletimber	529,509	--	4,076	6,376	9,171	16,635	33,928	32,723
Sapling & seedling	94,748	460	4,448	8,781	11,440	15,897	18,144	9,263
All stands	1,160,981	460	9,598	20,707	28,791	44,268	81,207	55,560
Maple-birch								
Sawtimber	2,455,682	--	--	3,771	3,763	26,240	45,955	48,658
Poletimber	2,308,839	--	--	2,880	6,296	21,902	52,785	63,171
Sapling & seedling	280,793	794	6,987	15,947	19,184	44,749	39,200	29,778
All stands	5,045,314	794	6,987	22,598	29,243	92,891	137,940	141,607
Aspen								
Sawtimber	558,223	--	627	4,018	5,854	12,171	25,762	23,457
Poletimber	1,904,283	--	1,920	10,770	11,884	55,211	107,587	132,036
Sapling & seedling	379,622	3,000	17,288	36,736	43,725	71,166	57,608	38,872
All stands	2,842,128	3,000	19,835	51,524	61,463	138,548	190,957	194,365
Paper birch								
Sawtimber	106,169	--	--	490	--	2,737	2,929	11,234
Poletimber	560,851	--	--	680	4,058	10,103	25,372	10,922
Sapling & seedling	62,223	206	1,566	3,140	5,661	11,724	9,631	6,719
All stands	729,243	206	1,566	4,310	9,719	24,564	37,932	28,875
Exotic								
Sawtimber	--	--	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--	--	--
Sapling & seedling	556	--	--	--	--	--	--	--
All stands	556	--	--	--	--	--	--	--
Nonstocked	16,602	1,515	2,512	483	1,718	795	2,875	1,521
All types								
Sawtimber	6,664,468	--	3,806	22,202	39,877	105,305	193,304	214,404
Poletimber	7,648,635	--	6,247	24,804	40,007	120,498	299,807	319,098
Sapling & seedling	1,168,480	5,779	37,513	94,381	108,854	193,923	185,070	121,432
Nonstocked	16,602	1,515	2,512	483	1,718	795	2,875	1,521
All stands	15,498,185	7,294	50,078	141,870	190,456	420,521	681,056	656,455

(Table 25 continued on next page)

Table 26.--Net volume of sawtimber on timberland by forest type, stand-size class, and basal-area class, Wisconsin, 1983

(In thousand board feet)[1/]

Forest type and stand-size class	All classes	Basal-area class (square feet per acre)						
		0-10	11-20	21-30	31-40	41-50	51-60	61-70
Jack pine								
Sawtimber	387,722	--	--	--	14,374	6,106	33,252	30,262
Poletimber	367,992	--	--	--	1,933	6,512	15,316	23,266
Sapling & seedling	53,541	--	1,677	1,419	4,983	12,680	4,940	11,292
All stands	809,255	--	1,677	1,419	21,290	25,298	53,508	64,820
Red pine								
Sawtimber	1,247,341	--	--	--	6,709	10,381	8,288	--
Poletimber	257,108	--	--	--	--	796	4,906	5,614
Sapling & seedling	49,545	790	702	--	9,183	7,614	9,425	--
All stands	1,553,994	790	702	--	15,892	18,791	22,619	5,614
White pine								
Sawtimber	1,329,387	--	3,600	1,198	30,725	6,433	24,229	9,210
Poletimber	86,177	--	--	--	--	--	2,120	--
Sapling & seedling	28,509	--	--	--	--	--	16,102	--
All stands	1,444,073	--	3,600	1,198	30,725	6,433	42,451	9,210
Balsam fir								
Sawtimber	431,236	--	--	--	--	14,233	62,424	13,586
Poletimber	308,334	--	--	1,114	--	2,572	13,103	9,473
Sapling & seedling	82,878	549	1,973	6,862	4,877	18,506	6,640	7,147
All stands	822,448	549	1,973	7,976	4,877	35,311	82,167	30,206
White spruce								
Sawtimber	177,558	--	--	--	--	--	--	7,211
Poletimber	36,803	--	--	--	--	--	--	--
Sapling & seedling	4,960	--	--	--	--	1,494	3,466	--
All stands	219,321	--	--	--	--	1,494	3,466	7,211
Black spruce								
Sawtimber	19,485	--	1,204	--	--	--	--	10,281
Poletimber	145,900	--	--	525	--	--	4,544	5,092
Sapling & seedling	35,072	--	--	2,504	--	11,410	3,002	503
All stands	200,457	--	1,204	3,029	--	11,410	7,546	15,876
Northern white-cedar								
Sawtimber	557,326	--	--	--	--	11,897	1,077	8,423
Poletimber	297,205	--	--	--	--	--	899	--
Sapling & seedling	19,213	--	--	2,150	417	5,210	1,621	--
All stands	873,744	--	--	2,150	417	17,107	3,597	8,423

(Table 26 continued on next page)

[1/] International 1/4-inch rule.

(Table 26 continued)

Forest type and stand-size class	Basal-area class (square feet per acre)						
	71-80	81-90	91-100	101-120	121-150	151-180	181+
Jack pine							
Sawtimber	45,035	63,635	41,183	99,732	39,437	14,706	--
Poletimber	41,783	60,533	105,048	81,147	28,219	--	4,235
Sapling & seedling	15,341	1,209	--	--	--	--	--
All stands	102,159	125,377	146,231	180,879	67,656	14,706	4,235
Red pine							
Sawtimber	32,779	58,160	68,536	367,996	345,970	266,237	82,285
Poletimber	2,133	29,081	5,129	49,865	66,062	35,075	58,447
Sapling & seedling	4,792	7,269	--	7,872	1,898	--	--
All stands	39,704	94,510	73,665	425,733	413,930	301,312	140,732
White pine							
Sawtimber	49,576	71,666	67,142	324,999	307,876	224,685	208,048
Poletimber	6,021	11,153	8,200	15,385	33,842	9,456	--
Sapling & seedling	12,407	--	--	--	--	--	--
All stands	68,004	82,819	75,342	340,384	341,718	234,141	208,048
Balsam fir							
Sawtimber	30,992	30,773	28,625	79,046	126,374	18,028	27,155
Poletimber	9,342	27,345	8,360	43,262	113,858	50,250	29,655
Sapling & seedling	19,234	2,830	5,485	4,054	1,202	3,519	--
All stands	59,568	60,948	42,470	126,362	241,434	71,797	56,810
White spruce							
Sawtimber	--	--	--	--	--	71,875	98,472
Poletimber	--	5,385	2,579	3,330	13,869	11,640	--
Sapling & seedling	--	--	--	--	--	--	--
All stands	--	5,385	2,579	3,330	13,869	83,515	98,472
Black spruce							
Sawtimber	--	--	--	--	8,000	--	--
Poletimber	8,923	6,419	81,671	10,665	28,061	--	--
Sapling & seedling	7,786	9,867	--	--	--	--	--
All stands	16,709	16,286	81,671	10,665	36,061	--	--
Northern white-cedar							
Sawtimber	23,350	21,553	11,505	29,866	122,098	137,097	190,460
Poletimber	7,896	9,028	4,530	67,892	24,754	110,682	71,524
Sapling & seedling	1,315	3,229	--	3,298	--	1,973	--
All stands	32,561	33,810	16,035	101,056	146,852	249,752	261,984

(Table 26 continued on next page)

(Table 26 continued)

Forest type and stand-size class	All classes	Basal-area class (square feet per acre) 0-10	11-20	21-30	31-40	41-50	51-60	61-70
Tamarack								
Sawtimber	38,022	--	1,439	8,099	--	4,586	4,413	4,509
Poletimber	58,373	--	1,397	878	--	2,204	4,578	5,684
Sapling & seedling	28,330	766	846	1,557	4,879	5,096	3,732	2,320
All stands	124,725	766	3,682	10,534	4,879	11,886	12,723	12,513
Oak-hickory								
Sawtimber	6,918,200	--	3,524	30,406	50,587	168,214	246,769	364,835
Poletimber	1,312,489	--	--	1,701	8,294	4,001	68,564	54,505
Sapling & seedling	351,917	966	9,499	43,729	48,577	47,233	78,755	39,412
All stands	8,582,606	966	13,023	75,836	107,458	219,448	394,088	458,752
Elm-ash-soft maple								
Sawtimber	1,819,357	--	4,816	24,116	29,904	47,110	110,654	54,561
Poletimber	739,519	--	675	8,157	17,946	21,573	49,311	43,250
Sapling & seedling	168,950	547	11,576	23,447	21,359	24,844	28,512	13,177
All stands	2,727,826	547	17,067	55,720	69,209	93,527	188,477	110,988
Maple-birch								
Sawtimber	8,596,273	--	--	14,290	15,429	103,271	151,095	185,941
Poletimber	3,367,547	--	--	2,183	10,549	32,527	60,191	88,949
Sapling & seedling	584,440	2,505	17,554	36,848	49,431	123,568	74,425	45,273
All stands	12,548,260	2,505	17,554	53,321	75,409	259,366	285,711	320,163
Aspen								
Sawtimber	1,632,601	--	2,559	14,061	19,218	38,396	82,959	75,286
Poletimber	1,929,362	--	2,015	11,413	10,245	70,409	87,446	114,285
Sapling & seedling	484,944	8,507	46,276	68,238	46,410	71,353	71,525	55,540
All stands	4,046,907	8,507	50,850	93,712	75,873	180,158	241,930	245,111
Paper birch								
Sawtimber	332,872	--	--	1,855	--	7,769	9,855	41,691
Poletimber	654,524	--	--	--	2,808	12,300	10,232	14,836
Sapling & seedling	63,887	1,176	2,597	5,490	3,409	8,412	14,263	11,963
All stands	1,051,283	1,176	2,597	7,345	6,217	28,481	34,350	68,490
Exotic								
Sawtimber	--	--	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--	--	--
Sapling & seedling	--	--	--	--	--	--	--	--
All stands	--	--	--	--	--	--	--	--
Nonstocked	30,514	5,086	4,634	2,135	2,440	750	5,274	4,075
All types								
Sawtimber	23,487,380	--	17,142	94,025	166,946	418,396	735,015	805,796
Poletimber	9,561,333	--	4,087	25,971	51,775	152,894	321,210	364,954
Sapling & seedling	1,956,186	15,806	92,700	192,244	193,525	337,420	316,408	186,627
Nonstocked	30,514	5,086	4,634	2,135	2,440	750	5,274	4,075
All stands	35,035,413	20,892	118,563	314,375	414,686	909,460	1,377,907	1,361,452

(Table 26 continued on next page)

(Table 26 continued)

Forest type and stand-size class	Basal-area class (square feet per acre)						
	71-80	81-90	91-100	101-120	121-150	151-180	181+
Tamarack							
Sawtimber	--	--	--	14,976	--	--	--
Poletimber	3,719	22,000	8,378	8,180	1,355	--	--
Sapling & seedling	4,340	2,187	2,607	--	--	--	--
All stands	8,059	24,187	10,985	23,156	1,355	--	--
Oak-hickory							
Sawtimber	588,208	831,157	609,591	1,852,013	1,562,289	543,475	67,132
Poletimber	109,998	163,993	173,335	314,428	287,636	108,037	17,997
Sapling & seedling	10,896	16,460	10,631	34,549	11,210	--	--
All stands	709,102	1,011,610	793,557	2,200,990	1,861,135	651,512	85,129
Elm-ash-soft maple							
Sawtimber	98,151	153,418	196,526	343,795	474,541	213,387	68,378
Poletimber	78,768	105,692	58,355	126,717	138,540	77,812	12,723
Sapling & seedling	5,154	11,588	10,081	9,552	9,113	--	--
All stands	182,073	270,698	264,962	480,064	622,194	291,199	81,101
Maple-birch							
Sawtimber	484,462	718,435	625,015	2,006,890	2,683,521	1,271,520	336,404
Poletimber	193,938	407,450	266,194	878,847	1,007,142	348,193	71,384
Sapling & seedling	51,354	71,952	23,620	67,987	10,646	9,277	--
All stands	729,754	1,197,837	914,829	2,953,724	3,701,309	1,628,990	407,788
Aspen							
Sawtimber	118,489	205,001	127,443	293,175	495,901	91,552	68,561
Poletimber	174,061	281,542	192,732	387,061	445,634	122,929	29,590
Sapling & seedling	59,567	22,987	18,053	15,392	1,096	--	--
All stands	352,117	509,530	338,228	695,628	942,631	214,481	98,151
Paper birch							
Sawtimber	23,844	37,335	9,318	67,684	61,028	43,927	28,566
Poletimber	48,473	46,924	42,394	130,581	230,731	104,593	10,652
Sapling & seedling	1,637	8,665	613	5,662	--	--	--
All stands	73,954	92,924	52,325	203,927	291,759	148,520	39,218
Exotic							
Sawtimber	--	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--	--
Sapling & seedling	--	--	--	--	--	--	--
All stands	--	--	--	--	--	--	--
Nonstocked	3,439	--	2,681	--	--	--	--
All types							
Sawtimber	1,494,886	2,191,133	1,784,884	5,480,172	6,227,035	2,896,489	1,175,461
Poletimber	685,055	1,176,545	956,905	2,117,360	2,419,703	978,667	306,207
Sapling & seedling	193,823	158,243	71,090	148,366	35,165	14,769	--
Nonstocked	3,439	--	2,681	--	--	--	--
All stands	2,377,203	3,525,921	2,815,560	7,745,898	8,681,903	3,889,925	1,481,668

Table 27.--Net volume of growing stock on timberland by species group[1/] and county, Wisconsin, 1983

(In thousand cubic feet)

County	All species	Softwoods			Hardwoods				
		Red and jack pine	Spruce-fir	Other softwoods	Select red oak	Other oaks	Hard maple	Aspen	Other hardwoods
NORTHEAST UNIT									
Florence	284,632	9,409	28,712	42,471	7,865	1,254	56,515	65,715	72,691
Forest	649,211	24,182	97,962	89,107	2,757	--	141,136	76,158	217,909
Langlade	423,998	7,727	43,996	28,854	7,343	291	97,931	83,082	154,774
Lincoln	341,784	36,758	29,637	17,857	14,214	109	39,455	78,972	124,782
Menominee	419,553	6,282	10,378	151,964	34,389	6,943	68,751	32,168	108,678
Marinette	669,096	65,547	50,084	96,815	40,767	29,696	45,369	131,635	209,183
Oconto	401,444	49,053	9,146	76,055	23,901	5,049	22,236	74,694	141,310
Oneida	484,290	72,381	70,711	62,391	27,117	1,114	27,946	88,668	133,962
Shawano	328,496	23,645	9,390	50,090	22,132	5,979	62,048	24,260	130,952
Vilas	471,572	67,765	34,896	60,347	29,209	2,356	77,675	88,154	111,170
Total	4,474,076	362,749	384,912	675,951	209,694	52,791	639,062	743,506	1,405,411
NORTHWEST UNIT									
Ashland	651,025	18,933	112,328	77,976	6,794	141	124,845	108,105	201,903
Barron	144,244	713	579	3,043	28,970	18,464	4,502	42,443	45,530
Bayfield	856,259	120,845	46,999	63,749	107,971	3,514	72,378	224,386	216,417
Burnett	278,576	71,391	357	8,090	33,600	26,595	4,106	76,028	58,409
Douglas	546,017	75,440	81,161	26,043	20,538	3,294	27,163	121,447	190,931
Iron	443,803	6,102	77,491	60,046	7,631	--	80,295	64,185	148,053
Polk	210,261	6,668	692	5,304	42,055	30,252	6,804	55,670	62,816
Price	478,144	31,304	56,734	44,159	11,081	469	59,126	92,538	182,733
Rusk	366,295	4,262	12,004	15,729	30,380	6,058	40,501	98,239	159,122
Sawyer	650,709	31,655	43,571	61,461	53,396	7,715	75,803	111,497	265,611
Taylor	358,765	2,634	26,205	23,475	15,272	416	45,431	53,468	191,864
Washburn	327,292	46,973	3,707	16,056	35,287	18,061	12,837	96,322	98,049
Total	5,311,390	416,920	461,828	405,131	392,975	114,979	553,791	1,144,328	1,821,438
CENTRAL UNIT									
Adams	168,308	76,885	--	11,595	7,755	48,183	--	14,550	9,340
Chippewa	221,462	7,610	624	13,979	25,414	18,725	12,753	51,923	90,434
Clark	315,028	13,850	1,614	13,226	39,938	26,867	11,129	114,536	93,868
Eau Claire	170,129	32,694	--	7,054	16,066	50,310	1,692	34,207	28,106
Jackson	352,216	84,424	--	23,941	63,963	73,864	--	58,067	47,957
Juneau	226,073	64,101	--	10,161	29,203	59,351	2,226	31,792	29,239
Marathon	392,263	3,274	9,902	39,069	34,127	3,731	63,910	67,226	171,024
Marquette	68,327	12,165	--	12,917	5,393	25,548	--	3,132	9,172
Monroe	200,384	18,363	--	15,534	49,727	46,433	2,829	20,502	46,996
Portage	168,395	30,358	591	25,210	15,040	31,777	3,804	25,182	36,433
Waupaca	249,567	17,976	8,020	48,747	21,145	17,046	14,030	18,463	104,140
Waushara	156,602	47,200	--	23,877	6,326	50,325	--	9,150	19,724
Wood	180,111	14,100	471	13,523	22,811	25,059	3,518	56,164	44,465
Total	2,868,865	423,000	21,222	258,833	336,908	477,219	115,891	504,894	730,898

(Table 27 continued on next page)

[1/] Species groups: other softwoods - primarily white pine, northern white-cedar, hemlock and tamarack; other hardwoods - primarily soft maple, paper birch, basswood, elm and ash.

(Table 27 continued)

County	All species	Softwoods: Red and jack pine	Softwoods: Spruce-fir	Softwoods: Other softwoods	Hardwoods: Select red oak	Hardwoods: Other oaks	Hardwoods: Hard maple	Hardwoods: Aspen	Hardwoods: Other hardwoods
SOUTHWEST UNIT									
Buffalo	222,070	5,415	--	--	54,034	53,653	664	35,303	73,001
Crawford	174,687	--	--	--	40,838	38,522	11,069	9,239	75,019
Dunn	189,128	27,050	--	1,634	36,716	36,774	11,473	23,416	52,065
Grant	182,760	--	--	1,341	36,821	63,285	10,995	8,755	61,563
Iowa	106,129	191	--	2,663	14,001	33,143	3,556	7,984	44,591
La Crosse	137,032	9,877	--	2,496	37,183	29,813	--	11,148	46,515
Lafayette	28,891	--	--	--	1,896	15,613	--	1,131	10,251
Pepin	44,697	--	--	168	10,063	3,661	2,524	5,613	22,668
Pierce	84,224	3,331	--	--	11,476	8,573	22,926	5,375	32,543
Richland	158,639	--	--	--	18,431	24,960	27,209	8,686	79,353
St.Croix	54,936	7,475	310	--	5,889	7,225	--	16,825	17,212
Sauk	195,053	8,328	1,108	2,850	51,839	40,778	4,770	21,982	63,398
Tempealeau	139,178	12,907	--	3,307	26,656	44,871	--	7,756	43,681
Vernon	218,247	--	--	1,325	57,728	52,685	21,683	3,778	81,048
Total	1,935,671	74,574	1,418	15,784	403,571	453,556	116,869	166,991	702,908
SOUTHEAST UNIT									
Brown	56,984	--	--	841	4,224	1,431	7,727	6,636	36,125
Calumet	17,223	--	--	2,772	432	--	841	640	12,538
Columbia	86,055	4,041	445	1,128	11,855	40,190	--	10,448	17,948
Dane	87,232	2,362	--	1,467	7,349	41,003	--	7,771	27,280
Dodge	18,651	--	--	1,116	1,174	2,114	350	2,089	11,808
Door	120,032	--	3,994	41,798	2,109	--	16,110	15,435	40,586
Fond du Lac	38,862	6,903	--	685	2,447	6,655	4,288	869	17,015
Green	31,528	--	225	1,470	4,303	5,735	2,982	1,150	15,663
Green Lake	20,631	511	--	3,550	3,833	6,695	--	868	5,174
Jefferson	41,317	4,987	--	--	6,530	8,869	6,118	--	14,813
Kenosha	7,282	--	--	1,084	1,134	2,151	--	--	2,913
Kewaunee	46,229	--	--	16,152	305	--	5,213	402	24,157
Manitowoc	58,351	--	600	12,505	3,692	762	8,617	4,306	27,869
Milwaukee	--	--	--	--	--	--	--	--	--
Outagamie	67,333	3,064	--	10,558	1,045	2,226	2,324	4,945	43,171
Ozaukee	18,426	--	--	1,571	--	1,253	1,639	--	13,963
Racine	6,961	--	--	--	492	2,437	854	513	2,665
Rock	23,905	162	--	--	907	11,979	--	--	10,857
Sheboygan	43,746	286	1,977	7,476	6,699	1,859	7,147	1,659	16,643
Walworth	33,071	--	--	--	5,257	14,477	--	1,587	11,750
Washington	35,124	--	--	2,256	1,604	1,492	4,028	1,019	24,725
Waukesha	23,392	--	--	--	8,014	6,879	--	1,520	6,979
Winnebago	25,848	--	--	--	3,136	775	760	3,697	17,480
Total	908,183	22,316	7,241	106,429	76,541	158,982	68,998	65,554	402,122
All counties	15,498,185	1,299,559	876,621	1,462,128	1,419,689	1,257,527	1,494,611	2,625,273	5,062,777

Table 28.--Net volume of sawtimber on timberland by species group[1/] and county, Wisconsin, 1983

(In thousand board feet)[2/]

County	All species	Softwoods: Red and jack pine	Softwoods: Spruce-fir	Softwoods: Other softwoods	Hardwoods: Select red oak	Hardwoods: Other oaks	Hardwoods: Hard maple	Hardwoods: Aspen	Hardwoods: Other hardwoods
NORTHEAST UNIT									
Florence	676,752	40,324	64,961	163,701	15,691	2,739	140,374	89,222	159,740
Forest	1,507,044	127,245	204,994	300,981	10,789	--	276,188	157,399	429,448
Langlade	746,043	36,011	82,240	59,490	20,857	--	216,967	99,012	231,466
Lincoln	537,299	64,660	42,974	67,440	29,172	--	56,853	107,326	168,874
Menominee	1,485,899	24,521	9,610	701,627	129,246	23,747	248,699	51,868	296,581
Marinette	1,211,917	174,927	86,992	279,861	78,568	67,739	77,457	200,857	245,516
Oconto	776,203	110,320	23,491	206,249	37,685	13,069	22,442	117,877	245,070
Oneida	968,341	258,677	112,766	223,136	78,583	1,950	34,169	131,532	127,528
Shawano	801,205	18,543	18,024	112,764	78,925	16,339	220,968	38,798	296,844
Vilas	1,157,977	274,042	64,649	242,032	86,454	8,570	175,792	156,762	149,676
Total	9,868,680	1,129,270	710,701	2,357,281	565,970	134,153	1,469,909	1,150,653	2,350,743
NORTHWEST UNIT									
Ashland	1,329,025	63,585	253,867	258,681	24,764	700	217,162	191,534	318,732
Barron	328,796	2,754	--	13,470	82,632	66,201	12,336	73,003	78,400
Bayfield	1,542,248	320,835	131,746	274,764	144,423	2,525	83,277	344,591	240,087
Burnett	538,202	120,764	--	34,649	74,258	72,837	14,114	124,649	96,931
Douglas	925,498	166,810	165,521	89,720	35,409	2,306	47,871	182,191	235,670
Iron	922,489	30,287	177,633	225,621	10,148	--	112,437	99,330	267,033
Polk	433,953	10,425	2,347	22,732	115,949	98,913	15,647	78,559	89,381
Price	862,152	101,433	111,226	121,124	12,190	1,869	97,403	136,866	280,041
Rusk	734,009	20,241	22,167	64,981	96,480	16,698	103,922	141,688	267,832
Sawyer	1,330,980	117,656	70,558	258,723	135,497	11,059	119,440	221,467	396,580
Taylor	568,777	9,318	46,719	70,547	47,402	1,137	55,141	44,091	294,422
Washburn	541,309	93,735	9,337	60,042	67,541	28,650	26,322	147,950	107,732
Total	10,057,438	1,057,843	991,121	1,495,054	846,693	302,895	905,072	1,785,919	2,672,841
CENTRAL UNIT									
Adams	289,680	102,033	--	36,779	24,656	91,483	--	15,779	18,950
Chippewa	486,377	35,154	2,082	52,459	83,878	52,253	33,183	91,495	135,873
Clark	581,519	55,016	--	72,588	115,347	66,621	34,654	118,443	118,850
Eau Claire	276,705	22,486	--	36,903	54,353	97,740	1,387	40,992	22,844
Jackson	758,779	163,704	--	95,062	207,378	170,301	--	59,137	63,197
Juneau	511,882	127,134	--	40,323	87,423	155,885	11,438	30,534	59,145
Marathon	891,885	8,757	13,253	137,055	100,493	15,911	184,487	92,805	339,124
Marquette	194,081	4,592	--	35,292	17,536	107,641	--	4,547	24,473
Monroe	538,948	50,067	--	71,444	174,869	119,366	9,750	32,694	80,758
Portage	390,347	46,169	--	85,893	52,716	106,519	5,235	28,248	65,567
Waupaca	668,728	33,205	9,688	145,228	85,555	56,040	53,984	26,592	258,436
Waushara	312,746	54,671	--	74,560	12,854	128,856	--	9,740	32,065
Wood	394,059	38,728	--	59,745	89,524	76,881	7,358	43,526	78,297
Total	6,295,736	741,716	25,023	943,331	1,106,582	1,245,497	341,476	594,532	1,297,579

(Table 28 continued on next page)

[1/] Species groups: other softwoods - primarily white pine, northern white-cedar, hemlock and tamarack; other hardwoods - primarily soft maple, paper birch, basswood, elm and ash.

[2/] International 1/4-inch rule.

(Table 28 continued)

County	All species	Softwoods: Red and jack pine	Softwoods: Spruce-fir	Softwoods: Other softwoods	Hardwoods: Select red oak	Hardwoods: Other oaks	Hardwoods: Hard maple	Hardwoods: Aspen	Hardwoods: Other hardwoods
SOUTHWEST UNIT									
Buffalo	670,741	2,993	--	--	206,157	211,842	1,574	104,014	144,161
Crawford	531,580	--	--	--	176,224	129,227	31,952	16,715	177,462
Dunn	520,234	24,414	--	7,207	149,716	111,758	30,957	54,748	141,434
Grant	651,885	--	--	7,241	164,905	232,375	44,562	8,591	194,211
Iowa	327,103	--	--	14,234	57,240	137,808	9,831	7,101	100,889
La Crosse	452,035	43,986	--	14,283	160,386	108,558	--	22,932	101,890
Lafayette	105,662	--	--	--	8,956	72,(illegible)4	--	1,149	23,553
Pepin	148,333	--	--	654	37,803	12,255	10,300	18,271	69,050
Pierce	279,016	13,479	--	--	47,333	31,324	88,301	10,059	88,520
Richland	496,242	--	--	--	75,642	90,192	111,002	25,956	193,450
St.Croix	113,372	3,243	--	--	18,646	16,839	--	42,373	32,271
Sauk	563,748	4,173	--	11,447	210,438	164,280	12,693	49,921	110,796
Tempealeau	390,487	--	--	--	114,963	165,457	--	23,760	86,307
Vernon	788,675	--	--	4,753	270,544	211,156	83,889	1,522	216,811
Total	6,039,113	92,288	--	59,819	1,698,953	1,695,075	425,061	387,112	1,680,805
SOUTHEAST UNIT									
Brown	162,959	--	--	874	19,319	6,441	25,655	8,607	102,063
Calumet	51,617	--	--	11,998	2,212	--	4,250	--	33,157
Columbia	259,221	--	--	4,225	47,765	155,238	--	12,131	39,862
Dane	322,788	3,561	--	6,741	35,877	182,310	--	22,926	71,373
Dodge	60,643	--	--	--	5,911	10,316	1,824	4,862	37,730
Door	280,462	--	9,522	90,707	1,704	--	54,366	25,229	98,934
Fond du Lac	139,445	22,048	--	3,781	11,689	26,599	10,218	1,066	64,044
Green	118,640	--	1,249	8,339	21,808	25,729	10,717	--	50,798
Green Lake	45,251	--	--	--	16,739	15,340	--	--	13,172
Jefferson	146,388	1,400	--	--	29,746	37,469	28,112	--	49,661
Kenosha	24,849	--	--	1,918	5,042	9,893	--	--	7,996
Kewaunee	137,906	--	--	48,278	1,575	--	20,067	1,225	66,761
Manitowoc	186,802	--	--	35,618	15,877	3,924	35,514	10,174	85,695
Milwaukee	--	--	--	--	--	--	--	--	--
Outagamie	185,690	17,447	--	29,182	3,992	10,029	3,846	15,432	105,762
Ozaukee	52,763	--	--	4,281	--	6,157	--	--	42,325
Racine	20,456	--	--	--	2,501	12,419	2,267	--	3,269
Rock	78,471	938	--	--	4,695	47,613	--	--	25,225
Sheboygan	109,692	--	2,579	13,918	28,191	6,860	23,623	3,134	31,387
Walworth	132,216	--	--	--	24,630	73,024	--	1,686	32,876
Washington	97,240	--	--	6,795	8,235	6,724	19,838	4,164	51,484
Waukesha	94,043	--	--	--	34,612	31,252	--	1,960	26,219
Winnebago	66,904	--	--	--	14,945	3,791	2,605	9,883	35,680
Total	2,774,446	45,394	13,350	266,655	337,065	671,128	242,902	122,479	1,075,473
All counties	35,035,413	3,066,511	1,740,195	5,122,140	4,555,263	4,048,748	3,384,420	4,040,695	9,077,441

Table 29.--Net volume of sawtimber on timberland by species group and tree grade[1/], Wisconsin, 1983

(In thousand board feet)[2/]

Species group	All grades	Tree grade 1	2	3	Tie and timber
Softwoods					
Jack pine	1,069,425	10,557	35,647	1,023,221	--
Red pine	1,997,086	143,695	117,258	1,736,133	--
White pine	2,666,253	385,625	552,641	1,499,339	228,648
White spruce	606,863	2,898	5,604	598,361	--
Black spruce	101,796	--	--	101,796	--
Balsam fir	1,031,536	--	2,757	1,028,779	--
Hemlock	1,130,685	135,428	157,514	837,743	--
Tamarack	193,864	--	772	193,092	--
Eastern white-cedar	4,843	--	--	4,843	--
Northern white-cedar	1,118,865	7,705	60,537	1,050,623	--
Other softwoods	7,630	--	--	7,630	--
Total	9,928,846	685,908	932,730	8,081,560	228,648
Hardwoods					
White oak	2,230,778	105,245	599,293	1,253,325	272,915
Select red oak	4,555,263	829,670	1,382,339	2,181,689	161,565
Other red oak	1,817,970	25,997	230,145	1,242,819	319,009
Select hickory	272,089	--	43,502	203,190	25,397
Other hickory	86,411	--	7,213	76,281	2,917
Basswood	1,991,915	413,776	467,957	1,077,555	32,627
Beech	117,188	4,687	39,067	67,406	6,028
Yellow birch	561,730	100,963	151,085	296,140	13,542
Hard maple	3,384,420	613,427	864,564	1,826,038	80,391
Soft maple	1,859,236	167,274	353,357	1,270,219	68,386
Elm	1,182,708	158,127	375,896	585,576	63,109
Black ash	549,728	59,698	138,997	342,689	8,344
White & green ash	813,179	163,986	185,810	442,439	20,944
Sycamore	--	--	--	--	--
Cottonwood	130,777	28,489	5,074	92,046	5,168
Willow	84,501	--	53,791	30,710	--
Hackberry	8,473	906	574	6,377	616
Balsam poplar	99,922	26,490	32,255	41,177	--
Bigtooth aspen	1,385,402	30,618	266,570	1,066,567	21,647
Quaking aspen	2,655,293	59,751	371,969	2,062,155	161,418
Paper birch	791,454	15,066	100,857	642,014	33,517
River birch	19,495	--	--	19,495	--
Black cherry	262,572	8,358	65,721	181,401	7,092
Black walnut	84,770	--	--	84,770	--
Butternut	123,867	--	54,277	69,590	--
Other hardwoods	37,426	--	8,987	28,439	--
Total	25,106,567	2,812,528	5,799,300	15,190,107	1,304,632
All species	35,035,413	3,498,436	6,732,030	23,271,667	1,533,280

[1/] The volumes shown represent the volume of entire trees assigned the grade given the butt log of each tree. (Differs from volume by log grade shown in table 30.)

[2/] International 1/4-inch rule.

Table 30.--Net volume of sawtimber on timberland by species group, log grade[1/], and diameter class, Wisconsin, 1983

(In thousand board feet)[2/]

Species group	All grades					Log grade 1				
	Diameter class (inches at breast height)					Diameter class (inches at breast height)				
	Total	9.0-14.9[3/]	15.0-18.9	19.0-22.9	23.0+	Total	9.0-14.9[3/]	15.0-18.9	19.0-22.9	23.0+
Softwoods										
Jack pine	1,069,425	1,041,191	27,309	925	--	3,780	3,780	--	--	--
Red pine	1,997,086	1,340,116	433,658	187,608	35,704	64,843	12,219	39,906	12,718	--
White pine	2,666,253	783,469	743,711	566,428	572,645	205,803	2,592	32,067	85,893	85,251
White spruce	606,863	465,746	107,194	25,295	8,628	4,476	--	4,476	--	--
Black spruce	101,796	95,070	6,726	--	--	--	--	--	--	--
Balsam fir	1,031,536	943,798	86,664	1,074	--	--	--	--	--	--
Hemlock	1,130,685	452,852	349,424	192,081	136,328	74,073	--	14,509	34,367	25,197
Tamarack	193,864	178,221	13,785	1,858	--	--	--	--	--	--
Eastern redcedar	4,843	3,109	1,734	--	--	--	--	--	--	--
Northern white-cedar	1,118,865	973,457	122,875	18,901	3,632	4,557	--	2,020	2,537	--
Other softwoods	7,630	5,958	1,672	--	--	--	--	--	--	--
Total	9,928,846	6,282,987	1,894,752	994,170	756,937	357,532	18,591	92,978	135,515	110,448
Hardwoods										
White oak	2,230,778	1,012,001	657,378	331,263	230,136	56,890	--	16,636	30,047	10,207
Select red oak	4,555,263	1,912,753	1,361,552	729,244	551,714	418,422	--	160,285	112,794	145,343
Other red oak	1,817,970	873,490	561,446	236,715	146,319	18,558	--	16,478	2,080	--
Select hickory	272,089	194,200	62,182	12,938	2,769	--	--	--	--	--
Other hickory	86,411	72,661	11,355	1,207	1,188	--	--	--	--	--
Basswood	1,991,915	1,171,104	486,895	200,098	133,818	265,516	25,736	144,539	61,658	33,583
Beech	117,188	44,889	39,423	22,045	10,831	1,455	--	--	--	1,455
Yellow birch	561,730	240,829	198,844	77,766	44,291	61,055	--	22,734	21,033	17,288
Hard maple	3,384,420	1,461,876	1,027,583	539,247	355,714	319,532	--	137,234	106,482	75,816
Soft maple	1,859,236	1,123,886	431,551	171,553	132,246	114,351	--	51,794	17,176	45,381
Elm	1,182,708	580,563	356,184	128,054	117,907	101,281	--	58,369	10,486	32,426
Black ash	549,728	425,412	104,519	16,731	3,066	33,875	6,224	26,669	--	982
White & green ash	813,179	535,758	200,316	42,740	34,365	64,812	16,073	17,226	16,093	15,420
Cottonwood	130,777	42,787	18,279	18,532	51,179	16,835	--	2,384	5,091	9,360
Willow	84,501	26,091	35,513	12,268	10,629	--	--	--	--	--
Hackberry	8,473	6,641	--	--	1,832	--	--	--	--	--
Balsam poplar	99,922	61,442	21,861	14,850	1,769	7,315	--	3,458	3,857	--
Bigtooth aspen	1,385,402	1,085,357	271,267	24,726	4,052	10,932	--	7,735	3,197	--
Quaking aspen	2,655,293	2,198,720	424,171	30,610	1,792	26,055	--	21,985	4,070	--
Paper birch	791,454	699,478	86,023	5,182	771	5,271	--	5,271	--	--
River birch	19,495	9,433	4,088	4,914	1,060	--	--	--	--	--
Black cherry	262,572	199,789	48,103	10,594	4,086	4,925	--	4,925	--	--
Black walnut	84,770	55,062	21,598	6,905	1,205	--	--	--	--	--
Butternut	123,867	74,586	38,848	6,431	4,002	--	--	--	--	--
Other hardwoods	37,426	29,858	3,796	3,772	--	--	--	--	--	--
Total	25,106,567	14,138,666	6,472,775	2,648,385	1,846,741	1,527,080	48,033	697,722	394,064	387,261
All species	35,035,413	20,421,653	8,367,527	3,642,555	2,603,678	1,884,612	66,624	790,700	529,579	497,709

(Table 30 continued on next page)

[1/] The volumes shown represent the volume in each individual log of every tree, summed for each of the 4 grades. (Differs from volume by tree grade shown in table 29.)

[2/] International 1/4-inch rule.

[3/] 9.0 to 14.9 inches for softwoods, and 11.0 to 14.9 inches for hardwoods.

(Table 30 continued)

Species group	Log grade 2					Log grades 3 & 4				
	Diameter class (inches at breast height)					Diameter class (inches at breast height)				
	Total	9.0-14.9[3/]	15.0-18.9	19.0-22.9	23.0+	Total	9.0-14.9[3/]	15.0-18.9	19.0-22.9	23.0+
Softwoods										
Jack pine	27,146	26,906	240	--	--	1,038,499	1,010,505	27,069	925	--
Red pine	95,068	30,674	30,432	26,670	7,292	1,837,175	1,297,223	363,320	148,220	28,412
White pine	454,000	106,799	138,165	89,994	119,042	2,006,450	674,078	573,479	390,541	368,352
White spruce	12,653	1,829	10,082	--	742	589,734	463,917	92,636	25,295	7,886
Black spruce	324	166	158	--	--	101,472	94,904	6,568	--	--
Balsam fir	6,663	2,820	3,843	--	--	1,024,873	940,978	82,821	1,074	--
Hemlock	147,258	32,254	52,597	33,219	29,188	909,354	420,598	282,318	124,495	81,943
Tamarack	367	367	--	--	--	193,497	177,854	13,785	1,858	--
Eastern redcedar	--	--	--	--	--	4,843	3,109	1,734	--	--
Northern white-cedar	28,145	15,773	12,178	194	--	1,086,163	957,684	108,677	16,170	3,632
Other softwoods	--	--	--	--	--	7,630	5,958	1,672	--	--
Total	771,624	217,588	247,695	150,077	156,264	8,799,690	6,046,808	1,554,079	708,578	490,225
Hardwoods										
White oak	459,433	131,142	190,242	74,504	63,545	1,714,455	880,859	450,500	226,712	156,384
Select red oak	930,702	237,784	351,348	192,929	148,641	3,206,139	1,674,969	849,919	423,521	257,730
Other red oak	267,435	56,245	98,616	34,786	77,788	1,531,977	817,245	446,352	199,849	68,531
Select hickory	40,050	28,234	11,593	137	86	232,039	165,966	50,589	12,801	2,683
Other hickory	6,124	5,472	547	--	105	80,287	67,189	10,808	1,207	1,083
Basswood	397,020	179,012	137,361	53,441	27,206	1,329,379	966,356	204,995	84,999	73,029
Beech	27,351	706	10,597	12,356	3,692	88,382	44,183	28,826	9,689	5,684
Yellow birch	130,303	30,683	69,121	18,754	11,745	370,372	210,146	106,989	37,979	15,258
Hard maple	745,211	176,671	318,442	177,681	72,417	2,319,677	1,285,205	571,907	255,084	207,481
Soft maple	292,513	93,621	141,297	31,898	25,697	1,452,372	1,030,265	238,460	122,479	61,168
Elm	295,671	70,766	130,212	62,817	31,876	785,756	509,797	167,603	54,751	53,605
Black ash	97,159	67,210	24,729	5,033	187	418,694	351,978	53,121	11,698	1,897
White & green ash	153,200	76,731	65,963	7,280	3,226	595,167	442,954	117,127	19,367	15,719
Cottonwood	10,986	684	4,211	2,438	3,653	102,956	42,103	11,684	11,003	38,166
Willow	12,566	55	1,860	8,044	2,607	71,935	26,036	33,653	4,224	8,022
Hackberry	162	--	--	--	162	8,311	6,641	--	--	1,670
Balsam poplar	22,301	12,218	6,633	3,450	--	70,306	49,224	11,770	7,543	1,769
Bigtooth aspen	158,992	74,943	82,210	1,839	--	1,215,478	1,010,414	181,322	19,690	4,052
Quaking aspen	222,059	128,902	90,495	2,662	--	2,407,179	2,069,818	311,691	23,878	1,792
Paper birch	74,531	44,773	29,758	--	--	711,652	654,705	50,994	5,182	771
River birch	43	43	--	--	--	19,452	9,390	4,088	4,914	1,060
Black cherry	40,951	27,365	9,500	--	4,086	216,696	172,424	33,678	10,594	--
Black walnut	--	--	--	--	--	84,770	55,062	21,598	6,905	1,205
Butternut	30,433	13,240	17,193	--	--	93,434	61,346	21,655	6,431	4,002
Other hardwoods	5,106	3,916	--	1,190	--	32,320	25,942	3,796	2,582	--
Total	4,420,302	1,460,416	1,791,928	691,239	476,719	19,159,185	12,630,217	3,983,125	1,563,082	982,761
All species	5,191,926	1,678,004	2,039,623	841,316	632,983	27,958,875	18,677,025	5,537,204	2,271,660	1,472,986

[3/] 9.0 to 14.9 inches for softwoods, and 11.0 to 14.9 inches for hardwoods.

Table 31.--Net volume of short-log trees on timberland by species group and diameter class, Wisconsin, 1983

(In thousand cubic feet)

Species group	All classes	Diameter class (inches at breast height) 9.0 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 22.9	23.0- 28.9	29.0- 38.9	39.0+
Softwoods											
Jack pine	6,579	2,366	1,398	2,702	113	--	--	--	--	--	--
Red pine	380	208	--	--	--	172	--	--	--	--	--
White pine	11,024	2,077	1,881	1,108	377	1,136	721	906	1,937	881	--
White spruce	559	--	559	--	--	--	--	--	--	--	--
Black spruce	192	192	--	--	--	--	--	--	--	--	--
Balsam fir	1,381	664	152	267	298	--	--	--	--	--	--
Hemlock	6,026	752	975	1,347	795	873	953	--	189	142	--
Tamarack	620	--	222	398	--	--	--	--	--	--	--
Eastern redcedar	--	--	--	--	--	--	--	--	--	--	--
Northern white-cedar	7,677	2,670	3,326	842	622	217	--	--	--	--	--
Other softwoods	364	364	--	--	--	--	--	--	--	--	--
Total	34,802	9,293	8,513	6,664	2,205	2,398	1,674	906	2,126	1,023	--
Hardwoods											
White oak	65,306	--	7,154	14,606	11,879	7,994	5,661	6,790	7,911	2,745	566
Select red oak	58,301	--	3,066	11,502	11,285	6,586	6,304	6,518	8,738	4,302	--
Other red oak	67,482	--	6,350	13,935	15,690	11,717	6,269	4,776	7,802	783	160
Select hickory	4,065	--	867	1,022	1,818	358	--	--	--	--	--
Other hickory	1,319	--	1,068	251	--	--	--	--	--	--	--
Basswood	16,376	--	1,782	3,461	2,916	2,213	2,169	1,118	1,277	411	1,029
Beech	1,674	--	--	--	516	372	--	163	207	416	--
Yellow birch	11,098	--	2,216	2,608	2,111	1,705	610	484	1,263	101	--
Hard maple	47,409	--	5,773	10,329	8,977	7,525	4,266	3,583	4,294	2,662	--
Soft maple	34,851	--	4,666	6,279	5,901	4,896	3,179	2,772	3,415	2,280	1,463
Elm	23,935	--	3,432	4,859	5,725	2,407	2,325	1,249	2,145	1,793	--
Black ash	1,962	--	723	541	698	--	--	--	--	--	--
White & green ash	7,067	--	1,230	1,481	1,196	953	233	--	1,974	--	--
Cottonwood	1,311	--	156	233	--	--	188	--	473	--	261
Willow	2,891	--	194	379	545	202	211	416	683	261	--
Hackberry	--	--	--	--	--	--	--	--	--	--	--
Balsam poplar	327	--	--	--	--	327	--	--	--	--	--
Bigtooth aspen	7,574	--	2,065	2,965	1,029	1,294	221	--	--	--	--
Quaking aspen	11,740	--	5,192	5,113	1,096	229	110	--	--	--	--
Paper birch	8,418	--	3,578	3,175	1,151	--	403	111	--	--	--
River birch	645	--	--	--	365	--	280	--	--	--	--
Black cherry	6,276	--	393	2,650	1,955	138	211	467	462	--	--
Black walnut	798	--	200	--	--	278	320	--	--	--	--
Butternut	2,758	--	544	616	1,183	202	--	--	213	--	--
Other hardwoods	2,787	--	732	768	590	402	--	--	138	157	--
Total	386,370	--	51,381	86,773	76,626	49,798	32,960	28,447	40,995	15,911	3,479
All species	421,172	9,293	59,894	93,437	78,831	52,196	34,634	29,353	43,121	16,934	3,479

Table 32.--Net volume of short-log trees on timberland by species group and diameter class, Wisconsin, 1983

(In thousand board feet)[1/]

Species group	All classes	Diameter class (inches at breast height) 9.0 10.9	11.0- 12.9	13.0- 14.9	15.0- 16.9	17.0- 18.9	19.0- 20.9	21.0- 22.9	23.0- 28.9	29.0- 38.9	39.0+
Softwoods											
Jack pine	22,799	8,247	4,824	9,333	395	--	--	--	--	--	--
Red pine	1,562	870	--	--	--	692	--	--	--	--	--
White pine	37,451	5,440	5,725	3,627	1,330	4,111	2,690	3,433	7,545	3,550	--
White spruce	2,475	--	2,475	--	--	--	--	--	--	--	--
Black spruce	494	494	--	--	--	--	--	--	--	--	--
Balsam fir	3,581	1,536	402	752	891	--	--	--	--	--	--
Hemlock	14,712	1,462	2,209	3,273	2,011	2,287	2,547	--	521	402	--
Tamarack	2,689	--	949	1,740	--	--	--	--	--	--	--
Eastern redcedar	--	--	--	--	--	--	--	--	--	--	--
Northern white-cedar	26,332	8,764	11,515	2,987	2,256	810	--	--	--	--	--
Other softwoods	1,820	1,820	--	--	--	--	--	--	--	--	--
Total	113,915	28,633	28,099	21,712	6,883	7,900	5,237	3,433	8,066	3,952	--
Hardwoods											
White oak	171,428	--	20,570	39,369	31,174	20,426	14,323	17,140	20,030	6,936	1,460
Select red oak	131,261	--	6,730	25,331	25,074	14,693	14,203	14,854	20,220	10,156	--
Other red oak	153,963	--	14,384	31,486	35,468	26,621	14,379	11,059	18,291	1,878	397
Select hickory	11,078	--	2,476	2,910	4,745	947	--	--	--	--	--
Other hickory	3,609	--	2,958	651	--	--	--	--	--	--	--
Basswood	35,489	--	3,710	7,318	6,286	4,766	4,737	2,464	2,849	937	2,422
Beech	4,471	--	--	--	1,412	964	--	424	557	1,114	--
Yellow birch	26,014	--	4,545	5,781	4,988	4,197	1,548	1,256	3,414	285	--
Hard maple	115,456	--	13,184	24,288	21,599	18,420	10,659	9,106	11,104	7,096	--
Soft maple	93,064	--	14,042	17,639	15,705	12,585	8,138	7,003	8,567	5,706	3,679
Elm	60,674	--	8,363	11,912	14,276	6,116	6,012	3,284	5,754	4,957	--
Black ash	5,664	--	2,327	1,531	1,806	--	--	--	--	--	--
White & green ash	16,362	--	3,084	3,585	2,734	2,216	518	--	4,225	--	--
Cottonwood	4,191	--	474	692	--	--	574	--	1,538	--	913
Willow	8,857	--	559	1,076	1,599	616	646	1,306	2,195	860	--
Hackberry	--	--	--	--	--	--	--	--	--	--	--
Balsam poplar	799	--	--	--	--	799	--	--	--	--	--
Bigtooth aspen	12,280	--	3,210	4,770	1,710	2,210	380	--	--	--	--
Quaking aspen	26,071	--	11,019	11,609	2,603	564	276	--	--	--	--
Paper birch	22,989	--	9,672	8,573	3,240	--	1,173	331	--	--	--
River birch	2,121	--	--	--	1,190	--	931	--	--	--	--
Black cherry	16,526	--	1,159	7,182	5,029	347	546	1,132	1,131	--	--
Black walnut	2,088	--	573	--	--	722	793	--	--	--	--
Butternut	7,470	--	1,633	1,733	3,087	499	--	--	518	--	--
Other hardwoods	10,047	--	2,656	2,724	2,088	1,449	--	--	524	606	--
Total	941,972	--	127,328	210,160	185,813	119,157	79,836	69,359	100,917	40,531	8,871
All species	1,055,887	28,633	155,427	231,872	192,696	127,057	85,073	72,792	108,983	44,483	8,871

[1/] International 1/4-inch rule.

Table 33.--Number of live trees on timberland by species group and diameter class, Wisconsin, 1983

(In thousand trees)

Species group	All classes	Diameter class (inches at breast height) 1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-28.9	29.0-38.9	39.0+
Softwoods															
Jack pine	311,595	123,859	69,778	62,827	34,711	13,911	5,063	1,153	273	17	3	--	--	--	--
Red pine	214,190	52,318	45,520	60,871	33,658	12,293	4,952	1,787	1,263	886	389	183	70	--	--
White pine	138,015	64,086	28,459	16,136	10,403	6,050	4,062	2,879	2,052	1,563	927	594	666	136	2
White spruce	76,618	31,166	15,424	13,324	8,968	4,241	1,961	900	402	149	38	29	16	--	--
Black spruce	266,698	158,252	73,318	26,515	6,802	1,463	281	35	29	3	--	--	--	--	--
Balsam fir	655,401	385,634	143,269	75,383	32,381	13,544	3,817	874	449	46	4	--	--	--	--
Hemlock	51,612	15,382	8,301	7,851	5,963	4,871	3,421	2,326	1,326	1,083	530	245	293	20	--
Tamarack	144,825	81,897	34,600	17,014	8,331	1,935	782	188	40	31	7	--	--	--	--
Eastern redcedar	13,203	9,703	1,356	1,657	311	120	30	11	15	--	--	--	--	--	--
Northern white-cedar	275,112	94,236	72,340	53,664	30,898	13,932	6,612	2,217	821	244	103	31	14	--	--
Other softwoods	5,471	2,892	1,362	767	228	88	110	--	24	--	--	--	--	--	--
Total	2,152,740	1,019,425	493,727	336,009	172,654	72,448	31,091	12,370	6,694	4,022	2,001	1,082	1,059	156	2
Hardwoods															
Select white oaks	249,444	121,579	39,698	27,015	19,640	13,617	10,530	6,851	4,517	2,535	1,436	911	868	227	20
Select red oaks	288,090	112,762	38,180	40,084	31,919	23,898	16,258	9,737	6,291	3,637	2,183	1,373	1,474	290	4
Other red oaks	304,275	158,646	38,141	35,873	26,335	17,800	11,483	6,936	4,375	2,166	1,099	625	705	87	4
Select hickory	61,982	37,168	8,242	5,721	4,460	3,051	1,864	842	423	145	47	10	9	--	--
Other hickory	71,599	40,512	15,329	10,016	3,619	992	832	199	71	20	6	--	3	--	--
Basswood	223,642	83,818	38,690	34,243	28,092	19,319	9,718	4,890	2,247	1,260	602	351	330	73	9
Beech	12,182	7,921	2,123	315	456	272	372	252	149	161	75	47	35	4	--
Yellow birch	114,505	47,286	29,906	15,500	8,721	5,849	3,118	1,820	982	687	291	156	159	30	--
Hard maple	927,657	486,342	209,468	113,997	58,603	27,024	13,424	7,696	4,693	2,846	1,595	861	944	159	5
Soft maple	1,171,319	661,160	277,909	128,717	57,500	24,799	10,375	5,224	2,608	1403	676	454	362	115	17
Elm	307,865	192,570	48,740	26,793	15,382	10,404	6,390	3,461	2,154	956	445	226	269	69	6
Black ash	329,952	180,411	73,398	41,430	19,747	9,158	3,703	1,214	604	184	61	27	15	--	--
White & green ash	167,004	109,033	19,520	13,883	9,568	7,205	4,000	2,007	1,049	422	141	45	116	15	--
Cottonwood	3,039	978	186	609	299	123	277	293	35	75	62	17	35	41	9
Willow	10,776	6,448	1,994	686	509	286	261	178	135	130	45	36	52	16	--
Hackberry	5,228	4,829	--	187	123	--	53	31	--	--	--	--	5	--	--
Balsam poplar	21,886	13,890	2,698	2,493	1,144	671	368	392	146	28	28	21	6	1	--
Bigtooth aspen	277,949	166,213	30,507	26,194	22,605	16,794	10,017	3,585	1,405	482	88	45	12	2	--
Quaking aspen	1,581,110	1,093,156	185,723	121,007	90,938	53,938	23,540	8,966	2,835	746	188	64	9	--	--
Paper birch	524,579	200,210	133,886	92,600	62,232	24,460	7,958	2,392	654	121	55	5	5	1	--
River birch	3,935	1,571	1,028	489	376	221	130	48	39	--	25	5	3	--	--
Black cherry	261,944	195,158	32,626	16,669	8,656	5,285	1,747	1,250	314	142	54	22	19	2	--
Black walnut	3,940	1,511	--	725	463	383	386	253	75	98	25	16	5	--	--
Butternut	12,942	5,947	1,034	1,292	2,162	847	742	443	315	90	41	14	13	2	--
Other hardwoods	51,932	31,357	10,613	5,089	2,360	981	753	453	179	90	28	4	23	2	--
Noncommercial spp.	614,303	490,493	95,481	21,956	4,910	1,003	406	47	7	--	--	--	--	--	--
Total	7,603,079	4,450,969	1,335,120	783,583	480,819	268,380	138,705	69,460	36,302	18,424	9,296	5,335	5,476	1,136	74
All species	9,755,819	5,470,394	1,828,847	1,119,592	653,473	340,828	169,796	81,830	42,996	22,446	11,297	6,417	6,535	1,292	76

Table 34.--Number of growing-stock trees on timberland by species group and diameter class, Wisconsin, 1983

(In thousand trees)

Species group	All classes	Diameter class (inches at breast height) 1.0-2.9	3.0-4.9	5.0-6.9	7.0-8.9	9.0-10.9	11.0-12.9	13.0-14.9	15.0-16.9	17.0-18.9	19.0-20.9	21.0-22.9	23.0-28.9	29.0-38.9	39.0+
Softwoods															
Jack pine	298,425	121,756	67,822	57,422	32,913	12,910	4,562	858	171	8	3	--	--	--	--
Red pine	212,039	52,318	45,123	59,899	33,080	12,138	4,943	1,775	1,251	876	389	177	70	--	--
White pine	133,431	63,659	28,292	14,745	9,471	5,252	3,714	2,706	1,937	1,478	888	544	624	119	2
White spruce	75,451	31,166	15,074	13,283	8,420	4,108	1,901	883	388	145	38	29	16	--	--
Black spruce	262,568	156,790	71,760	25,670	6,592	1,417	272	35	29	3	--	--	--	--	--
Balsam fir	648,848	384,586	140,586	74,328	31,268	13,102	3,665	841	435	33	4	--	--	--	--
Hemlock	47,400	15,382	7,896	6,767	4,926	4,256	2,860	2,058	1,252	993	469	243	280	18	--
Tamarack	142,325	81,492	33,846	16,317	7,857	1,833	756	146	40	31	7	--	--	--	--
Eastern redcedar	10,643	8,321	774	1,350	129	43	--	11	15	--	--	--	--	--	--
Northern white-cedar	252,152	91,799	67,616	47,451	26,783	10,999	4,919	1,743	588	179	48	19	8	--	--
Other softwoods	4,915	2,892	1,136	619	171	18	68	--	11	--	--	--	--	--	--
Total	2,088,197	1,010,161	479,925	317,851	161,610	66,076	27,660	11,056	6,117	3,746	1,846	1,012	998	137	2
Hardwoods															
Select white oaks	214,242	117,230	31,207	20,721	14,913	10,265	7,853	4,966	3,139	1,774	966	597	489	108	14
Select red oaks	266,432	111,372	35,752	34,341	28,605	21,281	14,213	8,297	5,304	3,206	1,767	1,039	1,082	169	4
Other red oaks	257,326	155,759	30,485	23,601	18,344	11,928	7,487	4,234	2,800	1,264	678	356	349	41	--
Select hickory	57,659	36,922	7,428	4,285	3,927	2,363	1,562	682	303	121	47	10	9	--	--
Other hickory	69,516	40,512	14,206	9,736	3,194	944	660	178	57	20	6	--	3	--	--
Basswood	208,609	81,847	35,999	29,366	26,339	17,916	8,949	4,355	1,893	964	450	259	227	42	3
Beech	10,819	7,549	1,573	315	399	219	265	181	99	116	45	33	25	--	--
Yellow birch	97,173	45,191	25,526	11,206	6,463	3,966	2,043	1,219	709	489	185	89	76	11	--
Hard maple	863,036	471,040	195,509	98,506	50,990	21,994	10,661	5,877	3,688	2,195	1,198	655	632	90	1
Soft maple	1093,477	641,815	255,553	111,352	49,380	19,961	7,779	3,933	1,766	943	447	255	234	54	5
Elm	288,127	188,573	45,014	21,516	12,992	8,599	5,366	2,789	1,687	810	349	178	206	43	5
Black ash	311,352	176,816	64,762	38,318	17,954	8,312	3,335	1,089	523	161	44	27	11	--	--
White & green ash	160,912	107,813	18,426	12,640	8,667	6,501	3,656	1,719	888	349	131	38	73	11	--
Cottonwood	2,581	978	186	329	189	123	240	283	35	75	58	17	21	39	8
Willow	8,554	6,187	780	359	356	240	232	109	102	116	33	15	23	2	--
Hackberry	5,169	4,829	--	187	64	--	53	31	--	--	--	--	5	--	--
Balsam poplar	21,697	13,890	2,698	2,445	1,116	633	325	385	135	18	28	21	2	1	--
Bigtooth aspen	269,819	165,095	29,407	24,282	20,958	15,992	9,255	3,185	1195	363	59	20	6	2	--
Quaking aspen	1,529,163	1,083,897	175,664	108,344	83,649	47,601	20,139	7,136	2,137	480	93	20	3	--	--
Paper birch	494,573	195,273	126,938	83,788	57,220	21,887	6,894	1,982	484	84	18	3	2	--	--
River birch	3,682	1,571	1,028	489	279	158	78	31	27	--	13	5	3	--	--
Black cherry	236,003	189,502	24,216	10,449	5,599	3,875	1239	767	182	117	41	5	11	--	--
Black walnut	3,420	1,511	--	539	372	299	305	241	39	83	17	11	3	--	--
Butternut	9,847	5,339	1034	675	1260	540	454	269	177	61	24	4	8	2	--
Other hardwoods	41,576	27,488	8,891	2,855	1,302	591	250	151	9	17	22	--	--	--	--
Noncommercial spp.	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	6,524,764	3,877,999	1,132,282	650,644	414,531	226,188	113,293	54,089	27,378	13,826	6,719	3,657	3,503	615	40
All species	8,612,961	4,888,160	1,612,207	968,495	576,141	292,264	140,953	65,145	33,495	17,572	8,565	4,669	4,501	752	42

Table 35.--Net annual growth of growing stock on timberland by softwoods and hardwoods, Wisconsin, 1967 and 1982

(In thousand cubic feet)

Species	1967[1/]	1982
Softwoods	114,676	142,663
Hardwoods	304,748	348,573
All species	419,424	491,236

[1/] Figures have been adjusted from those published after the 1968 survey to conform to 1982 volumes because of changes in survey definitions and procedures.

Table 36.--Net annual growth of growing stock on timberland by species group and Forest Survey Unit, Wisconsin, 1982

(In thousand cubic feet)

Species group	All Units	Forest Survey Unit				
		Northeast	Northwest	Central	Southwest	Southeast
Softwoods						
Jack pine	23,092	4,081	10,607	8,124	193	87
Red pine	43,977	13,113	8,768	15,411	4,659	2,026
White pine	16,876	5,033	4,234	6,226	508	875
White spruce	10,934	3,553	6,875	37	23	446
Black spruce	5,491	2,656	2,338	305	38	154
Balsam fir	22,338	9,621	11,877	773	3	64
Hemlock	2,840	1,900	466	375	--	99
Tamarack	2,041	1,004	796	240	--	1
Eastern redcedar	244	--	--	21	96	127
Northern white-cedar	14,647	7,818	3,560	1,068	--	2,201
Other softwoods	183	--	16	140	--	27
Total	142,663	48,779	49,537	32,720	5,520	6,107
Hardwoods						
White oak	11,453	133	1,287	2,950	5,072	2,011
Select red oak	34,507	5,502	10,720	8,337	8,644	1,304
Other red oak	15,934	-251	-194	10,830	4,184	1,365
Select hickory	2,876	--	--	113	1,927	836
Other hickory	3,233	492	210	285	1,909	337
Basswood	25,979	8,458	10,794	2,344	3,570	813
Beech	653	197	--	7	--	449
Yellow birch	2,673	807	1,174	454	38	200
Hard maple	46,806	20,074	18,495	3,318	3,102	1,817
Soft maple	51,605	12,592	22,289	12,334	2,740	1,650
Elm	-359	584	2,978	-1,059	-886	-1,976
Black ash	14,885	2,493	8,627	2,080	465	1,220
White & green ash	11,329	2,385	3,269	1,837	1,417	2,421
Cottonwood	1,008	398	--	38	474	98
Willow	536	35	4	17	191	289
Hackberry	102	--	--	--	87	15
Balsam poplar	733	450	198	-4	62	27
Bigtooth aspen	19,240	4,457	8,194	4,296	1,907	386
Quaking aspen	60,648	17,069	26,291	13,046	2,607	1,635
Paper birch	34,906	11,710	14,620	5,352	2,689	535
River birch	127	--	--	-12	139	--
Black cherry	6,300	1,757	562	581	2,221	1,179
Black walnut	611	--	--	6	438	167
Butternut	1,211	83	170	86	809	63
Other hardwoods	1,577	2	2	220	903	450
Total	348,573	89,427	129,690	67,456	44,709	17,291
All species	491,236	138,206	179,227	100,176	50,229	23,398

Table 37.--Net annual growth of sawtimber on timberland by species group and Forest Survey Unit, Wisconsin, 1982

(In thousand board feet)[1/]

Species group	All Units	Forest Survey Unit				
		Northeast	Northwest	Central	Southwest	Southeast
Softwoods						
Jack pine	71,795	14,570	32,952	23,196	951	126
Red pine	122,739	49,511	36,234	27,575	6,865	2,554
White pine	83,335	25,274	24,449	29,065	1,834	2,713
White spruce	39,075	12,294	25,900	157	--	724
Black spruce	4,577	3,105	1,324	148	--	--
Balsam fir	69,757	27,430	40,466	1,129	--	732
Hemlock	12,886	9,082	2,382	1,289	--	133
Tamarack	7,231	1,785	4,123	874	--	449
Eastern redcedar	251	--	--	85	105	61
Northern white-cedar	46,882	20,417	18,269	1,476	--	6,720
Other softwoods	413	--	99	314	--	--
Total	458,941	163,468	186,198	85,308	9,755	14,212
Hardwoods						
White oak	57,123	445	5,331	13,744	26,203	11,400
Select red oak	153,714	21,591	43,540	38,379	42,851	7,353
Other red oak	71,490	4,530	5,156	36,212	19,558	6,034
Select hickory	10,023	--	--	251	6,446	3,326
Other hickory	4,324	528	166	820	2,165	645
Basswood	88,496	26,460	36,516	7,683	15,119	2,718
Beech	1,679	162	--	1,198	--	319
Yellow birch	7,464	1,704	3,607	1,981	85	87
Hard maple	109,715	44,631	34,046	11,491	12,036	7,511
Soft maple	77,489	16,033	26,531	21,042	7,818	6,065
Elm	4,764	6,322	13,119	-2,676	-3,154	-8,847
Black ash	30,485	3,832	15,970	5,536	1,111	4,036
White & green ash	41,618	9,304	11,871	4,896	7,112	8,435
Cottonwood	4,266	1,776	--	140	2,143	207
Willow	2,258	132	16	-26	1,055	1,081
Hackberry	361	--	--	--	251	110
Balsam poplar	2,032	1,087	470	--	428	47
Bigtooth aspen	66,267	13,273	31,043	12,694	6,719	2,538
Quaking aspen	168,395	53,832	80,988	22,119	7,099	4,357
Paper birch	57,418	20,415	26,972	3,406	5,870	755
River birch	283	--	--	17	266	--
Black cherry	11,414	2,282	1,038	379	3,868	3,847
Black walnut	3,762	--	--	25	3,057	680
Butternut	6,428	715	723	1,682	3,200	108
Other hardwoods	2,810	9	--	884	1,631	286
Total	984,078	229,063	337,103	181,877	172,937	63,098
All species	1,443,019	392,531	523,301	267,185	182,692	77,310

[1/] International 1/4-inch rule

Table 38.--Net annual growth of growing stock on timberland by species group and ownership class, Wisconsin, 1982

(In thousand cubic feet)

Species group	All owners	Ownership class								
		National Forest	Misc. federal	State	County & municipal	Indian	Forest industry	Farmer	Misc. priv.-corp.	Misc. priv.-indiv.
Softwoods										
Jack pine	23,092	1,794	760	1,407	5,422	380	2,778	2,446	920	7,185
Red pine	43,977	4,741	408	2,357	8,023	472	3,154	5,072	2,742	17,008
White pine	16,876	1,305	344	930	1,509	1,327	972	3,922	740	5,827
White spruce	10,934	4,662	32	479	1,471	14	1,090	470	424	2,292
Black spruce	5,491	413	--	429	1,285	284	789	381	58	1,852
Balsam fir	22,338	-389	--	962	5,161	581	2,961	2,070	1,499	9,493
Hemlock	2,840	263	--	12	163	583	599	488	165	567
Tamarack	2,041	87	-1	230	318	-2	203	127	-15	1,094
Eastern redcedar	244	--	--	--	--	--	--	186	--	58
Northern white-cedar	14,647	1,508	--	403	1,709	845	1,242	3,295	397	5,248
Other softwoods	183	--	--	27	--	--	--	33	11	112
Total	142,663	14,384	1,543	7,236	25,061	4,484	13,788	18,490	6,941	50,736
Hardwoods										
White oak	11,453	87	22	398	630	39	74	6,121	468	3,614
Select red oak	34,507	2,550	319	854	4,206	829	1,328	12,327	1,291	10,803
Other red oak	15,934	2	562	441	638	39	251	6,035	854	7,112
Select hickory	2,876	--	--	4	--	--	13	1,934	176	749
Other hickory	3,233	18	--	35	51	91	120	2,202	193	523
Basswood	25,979	3,371	9	499	3,778	1,015	3,581	4,520	851	8,355
Beech	653	--	--	--	--	-8	24	43	10	584
Yellow birch	2,673	539	--	76	191	56	539	373	100	799
Hard maple	46,806	8,524	16	817	5,967	1,625	6,990	8,004	2,088	12,775
Soft maple	51,605	4,966	1,035	1,740	8,928	1,313	4,145	9,689	1,924	17,865
Elm	-359	-1,384	-434	-162	752	-85	626	-1,332	66	1,594
Black ash	14,885	1,951	58	774	2,374	4	1,340	2,543	396	5,445
White & green ash	11,329	578	68	221	733	208	970	4,747	470	3,334
Cottonwood	1,008	--	44	44	13	--	4	347	362	194
Willow	536	--	6	153	16	--	12	220	62	67
Hackberry	102	--	--	--	--	--	--	67	11	24
Balsam poplar	733	153	--	11	152	-5	15	77	51	279
Bigtooth aspen	19,240	3,090	198	450	2,829	635	705	3,872	785	6,676
Quaking aspen	60,648	6,328	525	2,500	11,581	808	4,081	11,112	2,449	21,264
Paper birch	34,906	2,300	166	1,613	6,482	956	3,264	6,568	1,778	11,779
River birch	127	--	-12	26	5	--	--	-1	82	27
Black cherry	6,300	385	--	292	372	-3	248	2,850	267	1,889
Black walnut	611	--	--	--	13	--	--	430	17	151
Butternut	1,211	24	--	8	-4	18	22	653	168	322
Other hardwoods	1,577	--	2	7	2	2	--	1,130	--	434
Total	348,573	33,482	2,584	10,801	49,709	7,537	28,352	84,531	14,919	116,658
All species	491,236	47,866	4,127	18,037	74,770	12,021	42,140	103,021	21,860	167,394

Table 39.--Net annual growth of sawtimber on timberland by species group and ownership class, Wisconsin, 1982

(In thousand board feet)[1/]

Species group	All owners	Ownership class								
		National Forest	Misc. federal	State	County & municipal	Indian	Forest industry	Farmer	Misc. priv.-corp.	Misc. priv.-indiv.
Softwoods										
Jack pine	71,795	6,640	2,472	5,122	10,515	1,403	9,161	8,887	4,146	23,449
Red pine	122,739	35,594	1,564	8,062	21,259	3,079	8,611	9,247	6,296	29,027
White pine	83,335	7,291	1,309	3,924	8,040	7,589	4,644	19,508	5,025	26,005
White spruce	39,075	14,289	81	1,630	7,187	61	4,302	2,180	1,371	7,974
Black spruce	4,577	693	--	-16	962	274	670	217	157	1,620
Balsam fir	69,757	8,191	--	3,150	16,908	1,129	11,364	3,710	4,254	21,051
Hemlock	12,886	1,398	--	78	871	2,587	3,070	1,978	851	2,053
Tamarack	7,231	142	16	972	1,951	50	244	1,107	284	2,465
Eastern redcedar	251	--	--	--	--	--	--	209	--	42
Northern white-cedar	46,882	6,841	--	1,609	5,556	2,183	7,627	8,277	2,095	12,694
Other softwoods	413	--	--	--	--	--	--	197	58	158
Total	458,941	81,079	5,442	24,531	73,249	18,355	49,693	55,517	24,537	126,538
Hardwoods										
White oak	57,123	--	108	1,509	1,345	133	312	35,506	1,607	16,603
Select red oak	153,714	6,849	664	3,923	14,592	5,019	5,194	60,932	7,491	49,050
Other red oak	71,490	--	816	2,730	6,255	511	1,216	25,393	3,699	30,870
Select hickory	10,023	--	--	26	--	--	--	5,764	1,325	2,908
Other hickory	4,324	27	--	114	8	165	79	2,023	124	1,784
Basswood	88,496	14,166	--	1,062	9,684	4,600	8,338	18,595	2,756	29,295
Beech	1,679	--	--	--	--	-10	83	626	37	943
Yellow birch	7,464	1,540	--	159	679	-194	2,029	1,124	-269	2,396
Hard maple	109,715	14,578	75	1,817	7,670	4,399	15,952	26,137	4,058	35,029
Soft maple	77,489	7,294	2,478	3,307	6,115	996	4,511	24,004	2,269	26,515
Elm	4,764	-609	-1,589	-882	1,949	-122	3,554	-4,051	-710	7,224
Black ash	30,485	459	74	1,100	7,680	-56	2,442	9,170	2,259	7,357
White & green ash	41,618	3,787	352	837	3,904	295	4,249	17,377	1,466	9,351
Cottonwood	4,266	--	461	108	69	--	21	1,432	1,334	841
Willow	2,258	--	28	221	38	--	56	559	350	1,006
Hackberry	361	--	--	--	--	--	--	251	--	110
Balsam poplar	2,032	83	--	9	444	-63	139	639	144	637
Bigtooth aspen	66,267	10,281	334	1,777	5,535	1,941	3,374	15,692	2,706	24,627
Quaking aspen	168,395	22,829	1,422	4,256	32,152	2,579	11,987	26,697	5,267	61,206
Paper birch	57,418	7,895	11	2,642	8,154	961	3,999	8,634	4,191	20,931
River birch	283	--	22	38	--	--	--	163	-60	120
Black cherry	11,414	603	--	215	563	147	479	5,744	721	2,942
Black walnut	3,762	--	--	--	1,295	--	--	1,727	94	646
Butternut	6,428	281	--	34	19	122	332	3,330	1,651	659
Other hardwoods	2,810	--	--	25	16	9	--	857	--	1,903
Total	984,078	90,063	5,256	25,027	108,166	21,432	68,346	288,325	42,510	334,953
All species	1,443,019	171,142	10,698	49,558	181,415	39,787	118,039	343,842	67,047	461,491

[1/] International 1/4-inch rule

Table 40.--Net annual growth of growing stock on timberland by species group and forest type, Wisconsin, 1982

(In thousand cubic feet)

Species group	All types	Forest type						
		Jack pine	Red pine	White pine	Balsam fir	White spruce	Black spruce	Northern white-cedar
Softwoods								
Jack pine	23,092	16,478	864	423	1	--	-11	30
Red pine	43,977	1,937	35,797	1,556	366	27	82	3
White pine	16,876	324	1,338	6,845	389	52	113	71
White spruce	10,934	--	130	69	1,367	4,579	25	130
Black spruce	5,491	20	76	25	640	1	2,965	417
Balsam fir	22,338	7	182	124	5,134	94	928	761
Hemlock	2,840	--	7	51	16	3	27	81
Tamarack	2,041	--	--	-10	59	--	48	224
Eastern redcedar	244	8	--	--	--	--	--	--
Northern white-cedar	14,647	--	22	26	1,373	44	237	8,880
Other softwoods	183	--	82	38	--	--	--	--
Total	142,663	18,774	38,498	9,147	9,345	4,800	4,414	10,597
Hardwoods								
White oak	11,453	8	10	48	1	--	--	--
Select red oak	34,507	108	165	68	13	--	24	6
Other red oak	15,934	382	-13	176	-14	--	--	4
Select hickory	2,876	--	--	22	--	--	--	13
Other hickory	3,233	--	--	--	--	--	--	9
Basswood	25,979	2	2	10	4	19	--	29
Beech	653	--	-3	--	--	--	--	--
Yellow birch	2,673	--	--	-11	-28	--	4	163
Hard maple	46,806	--	74	31	58	8	7	7
Soft maple	51,605	15	149	502	401	13	39	31
Elm	-359	13	98	-58	36	-3	--	-173
Black ash	14,885	--	--	19	770	3	--	652
White & green ash	11,329	--	51	--	6	30	--	8
Cottonwood	1,008	9	--	329	--	--	--	--
Willow	536	--	--	--	--	--	--	8
Hackberry	102	--	--	--	--	--	--	--
Balsam poplar	733	--	--	--	43	11	7	-14
Bigtooth aspen	19,240	340	84	213	41	4	-32	41
Quaking aspen	60,648	310	584	1,310	385	439	629	72
Paper birch	34,906	92	141	216	572	7	89	407
River birch	127	--	--	--	--	--	--	--
Black cherry	6,300	--	8	80	13	3	149	--
Black walnut	611	--	--	--	--	--	--	--
Butternut	1,211	--	--	--	--	--	--	--
Other hardwoods	1,577	--	12	--	--	--	--	--
Total	348,573	1,279	1,362	2,955	2,301	534	916	1,263
All species	491,236	20,053	39,860	12,102	11,646	5,334	5,330	11,860

(Table 40 continued on next page)

(Table 40 continued)

Species group	Forest type							
	Tamarack	Oak-hickory	Elm-ash-soft maple	Maple-birch	Aspen	Paper birch	Exotic	Non-stocked
Softwoods								
Jack pine	17	2,976	9	267	1,883	63	--	92
Red pine	10	1,200	20	767	1,830	374	--	8
White pine	243	1,419	769	3,221	1,570	501	--	21
White spruce	20	122	369	918	2,633	564	--	8
Black spruce	497	--	74	143	500	119	--	14
Balsam fir	587	62	2,296	3,866	6,795	1,497	--	5
Hemlock	-5	17	284	2,232	108	19	--	--
Tamarack	1,501	5	41	-6	120	28	--	31
Eastern redcedar	--	130	80	26	--	--	--	--
Northern white-cedar	52	9	1,740	1,479	521	264	--	--
Other softwoods	--	20	--	5	--	--	38	--
Total	2,922	5,960	5,682	12,918	15,960	3,429	38	179
Hardwoods								
White oak	--	8,884	431	1,315	543	181	--	32
Select red oak	-3	21,369	356	7,343	3,708	1,337	--	13
Other red oak	--	13,624	240	729	739	8	--	59
Select hickory	--	2,345	2	362	13	119	--	--
Other hickory	--	1,578	23	1,479	144	--	--	--
Basswood	--	2,224	1,191	21,094	1,138	240	--	26
Beech	--	8	11	637	--	--	--	--
Yellow birch	5	18	272	2,061	131	58	--	--
Hard maple	5	1,438	624	40,818	3,087	582	--	67
Soft maple	207	3,926	9,965	21,193	12,388	2,773	--	3
Elm	18	-385	-1,017	731	477	109	--	-205
Black ash	20	163	8,864	2,524	1,673	161	--	36
White & green ash	--	1,020	2,400	7,152	508	147	--	7
Cottonwood	--	167	249	112	138	4	--	--
Willow	--	--	344	77	85	15	--	7
Hackberry	--	24	30	48	--	--	--	--
Balsam poplar	-9	44	94	-17	499	75	--	--
Bigtooth aspen	338	2,362	67	2,706	12,526	550	--	--
Quaking aspen	273	2,334	1,613	6,647	44,027	1,983	--	42
Paper birch	153	3,550	928	5,214	11,205	12,257	--	75
River birch	--	3	124	--	--	--	--	--
Black cherry	1	2,037	68	2,550	1,260	131	--	--
Black walnut	--	483	--	116	--	--	--	12
Butternut	--	501	4	653	38	10	--	5
Other hardwoods	--	311	465	625	158	6	--	--
Total	1,008	68,028	27,348	126,169	94,485	20,746	--	179
All species	3,930	73,988	33,030	139,087	110,445	24,175	38	358

Table 41.--Net annual growth of sawtimber on timberland by species group and forest type, Wisconsin, 1982

(In thousand board feet)[1/]

Species group	All types	Forest type						
		Jack pine	Red pine	White pine	Balsam fir	White spruce	Black spruce	Northern white-cedar
Softwoods								
Jack pine	71,795	46,252	3,104	1,127	12	--	-72	--
Red pine	122,739	4,205	92,046	5,343	1,830	--	1,107	14
White pine	83,335	1,879	5,520	31,684	2,139	310	311	126
White spruce	39,075	--	575	552	5,356	14,550	120	512
Black spruce	4,577	487	--	-109	839	59	1,159	1,047
Balsam fir	69,757	--	758	514	22,458	318	3,768	1,437
Hemlock	12,886	--	35	341	102	15	158	297
Tamarack	7,231	--	--	210	509	--	35	679
Eastern redcedar	251	85	--	--	--	--	--	--
Northern white-cedar	46,882	--	68	89	4,924	--	726	23,926
Other softwoods	413	--	314	99	--	--	--	--
Total	458,941	52,908	102,420	39,850	38,169	15,252	7,312	28,038
Hardwoods								
White oak	57,123	--	96	129	--	--	--	9
Select red oak	153,714	324	269	202	57	--	75	31
Other red oak	71,490	1,413	561	564	--	--	-3	22
Select hickory	10,023	--	--	--	--	--	--	76
Other hickory	4,324	--	--	--	--	--	--	25
Basswood	88,496	--	12	-6	23	--	--	150
Beech	1,679	--	1,079	--	--	--	--	--
Yellow birch	7,464	--	3	-80	-122	--	21	18
Hard maple	109,715	--	898	156	134	33	6	89
Soft maple	77,489	--	1	428	205	95	97	-133
Elm	4,764	104	--	-43	210	-11	--	-516
Black ash	30,485	--	--	149	1,943	11	--	-9
White & green ash	41,618	--	676	--	--	--	--	33
Cottonwood	4,266	--	--	1,311	--	--	--	--
Willow	2,258	--	--	--	--	--	--	37
Hackberry	361	--	--	--	--	--	--	--
Balsam poplar	2,032	--	--	--	8	50	--	-61
Bigtooth aspen	66,267	454	262	283	18	--	-102	59
Quaking aspen	168,395	533	2,037	2,094	3,015	960	1,276	1,199
Paper birch	57,418	97	577	661	2,595	--	194	411
River birch	283	--	--	--	--	--	--	--
Black cherry	11,414	--	6	--	131	94	--	--
Black walnut	3,762	--	--	--	--	--	--	--
Butternut	6,428	--	--	--	--	--	--	--
Other hardwoods	2,810	--	66	--	--	--	--	--
Total	984,078	2,925	6,543	5,848	8,217	1,232	1,564	1,440
All species	1,443,019	55,833	108,963	45,698	46,386	16,484	8,876	29,478

(Table 41 continued on next page)

[1/] International 1/4-inch rule

(Table 41 continued)

Species group	Forest type							
	Tamarack	Oak-hickory	Elm-ash-soft maple	Maple-birch	Aspen	Paper birch	Exotic	Non-stocked
Softwoods								
Jack pine	--	10,893	119	719	9,196	276	--	169
Red pine	54	2,914	117	3,980	8,575	2,509	--	45
White pine	1,277	7,414	3,822	17,525	8,289	2,651	--	388
White spruce	70	--	2,030	5,031	8,242	1,992	--	45
Black spruce	359	--	245	103	281	19	--	88
Balsam fir	106	78	5,772	11,490	19,560	3,498	--	--
Hemlock	-20	92	920	10,344	509	93	--	--
Tamarack	2,134	38	1,108	173	1,500	119	--	726
Eastern redcedar	--	61	--	105	--	--	--	--
Northern white-cedar	590	--	7,685	6,034	2,082	758	--	--
Other softwoods	--	--	--	--	--	--	--	--
Total	4,570	21,490	21,818	55,504	58,234	11,915	--	1,461
Hardwoods								
White oak	--	44,011	1,327	8,284	1,531	1,669	--	67
Select red oak	15	95,484	1,916	35,214	14,370	5,691	--	66
Other red oak	--	56,148	1,652	3,791	6,853	301	--	188
Select hickory	--	8,588	9	1,046	--	304	--	--
Other hickory	--	2,405	--	1,871	23	--	--	--
Basswood	--	7,563	3,157	74,658	2,458	434	--	47
Beech	--	--	15	585	--	--	--	--
Yellow birch	--	65	1,045	6,488	-28	54	--	--
Hard maple	--	3,567	829	102,064	1,557	382	--	--
Soft maple	143	5,908	24,054	36,788	7,665	2,238	--	--
Elm	82	69	-3,841	7,217	2,349	-98	--	-758
Black ash	--	502	20,670	5,585	1,316	318	--	--
White & green ash	--	3,956	11,115	23,274	2,017	517	--	30
Cottonwood	--	689	1,391	489	367	19	--	--
Willow	--	--	1,633	390	103	66	--	29
Hackberry	--	110	156	95	--	--	--	--
Balsam poplar	--	298	155	19	1,455	108	--	--
Bigtooth aspen	-2	8,224	492	7,785	45,956	2,834	--	--
Quaking aspen	153	8,193	5,020	31,866	105,096	6,367	--	586
Paper birch	141	4,491	3,612	15,402	14,594	14,643	--	--
River birch	--	89	194	--	--	--	--	--
Black cherry	--	3,274	16	6,405	1,318	170	--	--
Black walnut	--	2,196	--	1,537	--	--	--	29
Butternut	--	2,685	19	3,388	336	--	--	--
Other hardwoods	--	314	2,143	245	42	--	--	--
Total	536	258,829	76,779	374,486	209,378	36,017	--	284
All species	5,106	280,319	98,597	429,990	267,612	47,932	--	1,745

Table 42.--Net annual growth of growing stock on timberland by forest type and stand-age class, Wisconsin, 1982

(In thousand cubic feet)

Forest type	All classes	Stand-age class (years)												
		1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-120	121-140	141+
Jack pine	20,053	485	3,194	3,115	5,324	5,383	1,803	304	370	75	--	--	--	--
Red pine	39,860	304	8,559	13,142	9,899	4,548	1,902	360	379	348	295	124	--	--
White pine	12,102	210	693	832	1,460	1,657	885	1,604	1,610	1,311	94	915	298	533
Balsam fir	11,646	1,215	822	1,319	-18	2,205	3,181	2,011	303	270	62	299	-19	-4
White spruce	5,334	12	275	2,012	1,451	482	985	117	--	--	--	--	--	--
Black spruce	5,330	338	590	428	600	653	364	240	1,439	419	190	--	69	--
Northern white-cedar	11,860	194	442	312	355	2,028	1,592	1,937	948	1,247	920	604	536	745
Tamarack	3,930	153	311	485	162	1,063	426	620	486	124	--	44	15	41
Oak-hickory	73,988	3,709	1,855	2,245	4,412	11,944	14,932	7,368	7,621	6,715	3,926	4,515	3,153	1,593
Elm-ash-soft maple	33,030	1,751	2,068	2,515	5,159	5,767	4,184	3,676	3,475	1,641	1,216	922	494	162
Maple-birch	139,087	5,348	6,453	7,152	13,337	29,100	26,938	18,580	7,628	7,917	5,957	5,677	2,420	2,580
Aspen	110,445	14,226	8,272	11,786	20,661	29,972	16,309	5,719	2,150	1,209	141	--	--	--
Paper birch	24,175	962	2,204	2,556	3,918	5,636	5,030	2,929	664	74	9	193	--	--
Exotic	38	--	38	--	--	--	--	--	--	--	--	--	--	--
Nonstocked	358	358	--	--	--	--	--	--	--	--	--	--	--	--
All types	491,236	29,265	35,776	47,899	66,720	100,438	78,531	45,465	27,073	21,350	12,810	13,293	6,966	5,650

Table 43.--Net annual growth of sawtimber on timberland by forest type and stand-age class, Wisconsin, 1982

(In thousand board feet)[1/]

Forest type	All classes	Stand-age class (years)												
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-120	121-140	141+
Jack pine	55,833	2,892	1,984	1,279	9,958	22,981	12,407	1,687	2,009	636	--	--	--	--
Red pine	108,963	1,339	4,000	20,933	37,056	25,939	10,998	1,749	2,219	2,373	1,720	637	--	--
White pine	45,698	851	111	2,701	2,435	5,814	4,091	5,956	8,017	6,602	643	3,554	1,915	3,008
Balsam fir	46,386	1,880	867	2,481	2,861	9,516	13,754	9,890	751	1,381	497	2,084	250	174
White spruce	16,484	--	327	1,883	7,231	2,424	3,811	808	--	--	--	--	--	--
Black spruce	8,876	100	504	191	205	998	275	516	5,533	541	-21	--	34	--
Northern white-cedar	29,478	210	229	1,251	223	6,390	2,610	2,541	1,657	2,099	4,049	2,377	2,890	2,952
Tamarack	5,106	380	249	123	135	429	436	1,116	1,212	735	--	129	97	65
Oak-hickory	280,319	14,643	4,587	2,585	10,141	27,331	51,130	32,660	39,440	28,531	24,538	22,798	15,265	6,670
Elm-ash-soft maple	98,597	9,790	3,452	2,382	9,270	12,282	11,924	12,165	12,463	12,588	5,431	3,958	2,112	780
Maple-birch	429,990	12,019	12,180	12,821	27,727	56,470	80,764	74,635	35,082	38,865	29,691	27,439	11,011	11,286
Aspen	267,612	36,978	12,707	16,539	41,840	64,640	52,491	21,021	13,992	5,933	1,471	--	--	--
Paper birch	47,932	1,757	1,626	1,337	7,376	10,681	14,400	8,301	1,840	342	77	195	--	--
Exotic	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nonstocked	1,745	1,745	--	--	--	--	--	--	--	--	--	--	--	--
All types	1,443,019	84,584	42,823	66,506	156,458	245,895	259,091	173,045	124,215	100,626	68,096	63,171	33,574	24,935

[1/] International 1/4-inch rule.

Table 44.--Net annual growth of growing stock on timberland by forest type, stand-size class, and basal-area class, Wisconsin, 1982

(In thousand cubic feet)

Forest type and stand-size class	All classes	Basal area class (square feet per acre)													
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-120	121-150	151-180	181+
Jack pine															
Sawtimber	3,125	--	--	--	214	77	374	274	308	455	275	794	245	109	--
Poletimber	12,065	--	--	--	185	855	581	955	1,493	2,106	2,896	1,663	1,017	121	193
Sapling & seedling	4,863	15	18	398	282	321	313	738	2,616	162	--	--	--	--	--
All stands	20,053	15	18	398	681	1,253	1,268	1,967	4,417	2,723	3,171	2,457	1,262	230	193
Red pine															
Sawtimber	10,434	--	--	--	70	71	88	--	649	749	732	3,291	2,415	2,017	352
Poletimber	26,464	--	--	--	--	16	231	272	955	2,753	1,022	5,055	5,846	4,069	6,245
Sapling & seedling	2,962	-20	182	8	199	65	587	--	566	142	140	453	640	--	--
All stands	39,860	-20	182	8	269	152	906	272	2,170	3,644	1,894	8,799	8,901	6,086	6,597
White pine															
Sawtimber	8,433	--	43	9	244	38	171	76	269	631	479	2,553	2,304	1,063	553
Poletimber	3,182	--	--	--	--	--	121	--	182	200	435	1,229	612	403	--
Sapling & seedling	487	--	--	--	--	30	121	--	336	--	--	--	--	--	--
All stands	12,102	--	43	9	244	68	413	76	787	831	914	3,782	2,916	1,466	553
Balsam fir															
Sawtimber	2,915	--	--	--	--	204	32	111	-72	330	265	643	982	186	234
Poletimber	5,825	--	--	19	--	38	-1,045	670	348	897	196	755	1,968	1,256	723
Sapling & seedling	2,906	58	76	201	87	383	264	430	697	55	361	203	47	44	--
All stands	11,646	58	76	220	87	625	-749	1,211	973	1,282	822	1,601	2,997	1,486	957
White spruce															
Sawtimber	2,440	--	--	--	--	--	--	195	--	--	--	--	--	1,170	1,075
Poletimber	2,752	--	--	--	--	--	--	--	--	156	288	143	1,921	244	--
Sapling & seedling	142	--	--	12	--	9	111	--	10	--	--	--	--	--	--
All stands	5,334	--	--	12	--	9	111	195	10	156	288	143	1,921	1,414	1,075
Black spruce															
Sawtimber	165	--	69	--	--	--	--	40	--	--	--	--	56	--	--
Poletimber	3,349	--	--	26	--	--	203	361	292	255	1,077	289	730	116	--
Sapling & seedling	1,816	86	30	175	129	63	79	469	172	407	68	72	66	--	--
All stands	5,330	86	99	201	129	63	282	870	464	662	1,145	361	852	116	--
Northern white-cedar															
Sawtimber	3,150	--	--	--	--	20	1	59	128	130	53	274	976	634	875
Poletimber	7,524	--	--	--	--	--	174	--	212	366	94	1,942	1,036	2,101	1,599
Sapling & seedling	1,186	--	-3	88	11	134	52	--	195	44	--	450	--	215	--
All stands	11,860	--	-3	88	11	154	227	59	535	540	147	2,666	2,012	2,950	2,474

(Table 44 continued on next page)

(Table 44 continued)

Forest type and stand-size class	All classes	Basal area class (square feet per acre) 0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-120	121-150	151-180	181+
Tamarack															
Sawtimber	237	--	11	66	--	23	23	15	--	--	--	99	--	--	--
Poletimber	2,726	--	11	11	17	164	166	838	18	659	227	643	-28	--	--
Sapling & seedling	967	5	15	152	122	178	110	38	223	24	100	--	--	--	--
All stands	3,930	5	37	229	139	365	299	891	241	683	327	742	-28	--	--
Oak-hickory															
Sawtimber	38,040	--	-36	160	130	1,091	1,328	1,956	3,653	5,122	3,191	10,315	8,526	2,183	421
Poletimber	29,673	--	--	5	208	208	1,888	1,130	3,183	4,169	3,845	6,811	5,061	2,755	410
Sapling & seedling	6,275	--	327	688	701	1,246	1,244	764	227	642	169	145	122	--	--
All stands	73,988	--	291	853	1,039	2,545	4,460	3,850	7,063	9,933	7,205	17,271	13,709	4,938	831
Elm-ash-soft maple															
Sawtimber	9,137	--	14	116	163	239	779	288	241	1,312	693	1,494	2,419	1,220	159
Poletimber	19,056	--	353	237	295	697	1,701	1,198	1,775	2,616	1,511	3,801	3,081	1,729	62
Sapling & seedling	4,837	-94	191	399	518	887	1,228	455	437	387	331	14	84	--	--
All stands	33,030	-94	558	752	976	1,823	3,708	1,941	2,453	4,315	2,535	5,309	5,584	2,949	221
Maple-birch															
Sawtimber	47,603	--	--	370	142	405	1,432	1,636	2,691	3,795	3,227	10,895	15,863	5,901	1,246
Poletimber	77,532	--	--	215	289	996	2,339	2,439	6,091	9,995	6,816	21,149	19,092	6,934	1,177
Sapling & seedling	13,952	84	1,049	835	1,050	1,764	2,545	1,400	1,885	1,439	666	915	128	192	--
All stands	139,087	84	1,049	1,420	1,481	3,165	6,316	5,475	10,667	15,229	10,709	32,959	35,083	13,027	2,423
Aspen															
Sawtimber	13,758	--	19	105	98	184	425	637	1,267	1,849	1,280	2,727	3,554	1,049	564
Poletimber	69,200	--	487	329	484	2,508	5,290	4,882	5,920	9,766	7,996	13,707	13,102	4,089	640
Sapling & seedling	27,487	2,193	1,291	2,638	3,740	5,050	4,708	2,201	2,552	1,896	822	324	22	50	--
All stands	110,445	2,193	1,797	3,072	4,322	7,742	10,423	7,720	9,739	13,511	10,098	16,758	16,678	5,188	1,204
Paper birch															
Sawtimber	2,646	--	--	14	--	212	67	276	316	276	131	522	535	179	118
Poletimber	17,601	--	--	52	158	527	923	337	1,134	1,316	1,030	4,016	5,853	2,015	240
Sapling & seedling	3,928	-20	192	340	207	745	865	231	167	315	412	363	111	--	--
All stands	24,175	-20	192	406	365	1,484	1,855	844	1,617	1,907	1,573	4,901	6,499	2,194	358
Exotic															
Sawtimber	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sapling & seedling	38	--	--	--	--	--	--	--	38	--	--	--	--	--	--
All stands	38	--	--	--	--	--	--	--	38	--	--	--	--	--	--
Nonstocked	358	85	6	17	11	31	72	35	9	--	29	16	47	--	--
All types															
Sawtimber	142,083	--	120	840	1,061	2,564	4,720	5,563	9,450	14,649	10,326	33,607	37,875	15,711	5,597
Poletimber	276,949	--	851	894	1,636	6,009	12,572	13,082	21,603	35,254	27,433	61,203	59,291	25,832	11,289
Sapling & seedling	71,846	2,307	3,368	5,934	7,046	10,875	12,227	6,726	10,121	5,513	3,069	2,939	1,220	501	--
Nonstocked	358	85	6	17	11	31	72	35	9	--	29	16	47	--	--
All stands	491,236	2,392	4,345	7,685	9,754	19,479	29,591	25,406	41,183	55,416	40,857	97,765	98,433	42,044	16,886

Table 45.--Net annual growth of sawtimber on timberland by forest type, stand-size class, and basal-area class, Wisconsin, 1982

(In thousand board feet)[1/]

Forest type and stand-size class	All classes	Basal area class (square feet per acre)													
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-120	121-150	151-180	181+
Jack pine															
Sawtimber	22,077	--	--	--	1,314	233	2,089	3,595	3,171	3,051	1,934	4,552	1,698	440	--
Poletimber	28,075	--	--	--	104	805	2,033	2,213	2,033	5,311	7,035	6,668	1,571	--	302
Sapling & seedling	5,681	47	69	57	685	1,396	660	917	1,757	93	--	--	--	--	--
All stands	55,833	47	69	57	2,103	2,434	4,782	6,725	6,961	8,455	8,969	11,220	3,269	440	302
Red pine															
Sawtimber	73,238	--	--	--	470	501	471	--	4,053	3,609	9,889	21,785	17,370	13,029	2,061
Poletimber	32,612	--	--	--	--	53	465	600	43	2,855	219	6,618	12,819	1,921	7,019
Sapling & seedling	3,113	75	38	--	898	342	429	--	428	336	--	500	67	--	--
All stands	108,963	75	38	--	1,368	896	1,365	600	4,524	6,800	10,108	28,903	30,256	14,950	9,080
White pine															
Sawtimber	40,062	--	240	80	1,538	223	915	413	1,452	3,043	1,788	11,867	9,569	5,666	3,268
Poletimber	4,709	--	--	--	--	--	133	--	583	518	272	592	1,944	667	--
Sapling & seedling	927	--	--	--	--	--	578	--	349	--	--	--	--	--	--
All stands	45,698	--	240	80	1,538	223	1,626	413	2,384	3,561	2,060	12,459	11,513	6,333	3,268
Balsam fir															
Sawtimber	20,490	--	--	--	--	1,977	3,444	740	902	1,590	1,025	3,282	6,371	604	555
Poletimber	21,982	--	--	86	--	55	970	206	427	3,267	1,595	1,235	10,347	2,832	962
Sapling & seedling	3,914	226	34	426	201	1,053	-8	618	648	104	297	106	8	201	--
All stands	46,386	226	34	512	201	3,085	4,406	1,564	1,977	4,961	2,917	4,623	16,726	3,637	1,517
White spruce															
Sawtimber	13,153	--	--	--	--	--	--	718	--	--	--	--	--	5,811	6,624
Poletimber	3,098	--	--	--	--	--	--	--	--	346	196	94	1,883	579	--
Sapling & seedling	233	--	--	--	--	46	187	--	--	--	--	--	--	--	--
All stands	16,484	--	--	--	--	46	187	718	--	346	196	94	1,883	6,390	6,624
Black spruce															
Sawtimber	490	--	34	--	--	--	--	141	--	--	--	--	315	--	--
Poletimber	7,557	--	--	38	--	--	157	643	206	338	4,396	512	1,267	--	--
Sapling & seedling	829	--	--	45	--	251	155	8	18	352	--	--	--	--	--
All stands	8,876	--	34	83	--	251	312	792	224	690	4,396	512	1,582	--	--
Northern white-cedar															
Sawtimber	14,221	--	--	--	--	233	-7	432	684	187	236	1,086	4,764	3,857	2,749
Poletimber	14,628	--	--	--	--	--	479	--	326	410	101	6,758	630	4,443	1,481
Sapling & seedling	629	--	--	143	12	110	7	--	94	90	--	50	--	123	--
All stands	29,478	--	--	143	12	343	479	432	1,104	687	337	7,894	5,394	8,423	4,230

(Table 45 continued on next page)

[1/] International 1/4-inch rule.

(Table 45 continued)

Forest type and stand-size class	All classes	Basal area class (square feet per acre)													
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-120	121-150	151-180	181+
Tamarack															
Sawtimber	1,116	--	68	244	--	133	159	97	--	--	--	415	--	--	--
Poletimber	3,115	--	100	22	--	399	283	247	266	703	382	742	-29	--	--
Sapling & seedling	875	11	14	63	102	295	140	117	1	60	72	--	--	--	--
All stands	5,106	11	182	329	102	827	582	461	267	763	454	1,157	-29	--	--
Oak-hickory															
Sawtimber	195,961	--	-167	866	1,948	5,076	5,729	13,473	21,738	24,204	17,326	54,114	39,292	10,625	1,737
Poletimber	63,344	--	--	37	519	140	3,460	2,451	5,828	8,652	8,508	16,669	11,039	4,992	1,049
Sapling & seedling	21,014	284	1,194	3,497	4,580	2,344	4,588	1,440	953	734	305	789	306	--	--
All stands	280,319	284	1,027	4,400	7,047	7,560	13,777	17,364	28,519	33,590	26,139	71,572	50,637	15,617	2,786
Elm-ash-soft maple															
Sawtimber	51,442	--	15	392	569	1,779	4,048	2,760	2,348	4,964	4,835	8,557	14,701	5,557	917
Poletimber	32,586	--	-72	278	500	313	2,160	3,957	3,827	6,069	2,692	5,396	5,150	1,960	356
Sapling & seedling	14,569	110	1,435	985	3,415	2,048	2,180	532	1,192	217	1,305	945	205	--	--
All stands	98,597	110	1,378	1,655	4,484	4,140	8,388	7,249	7,367	11,250	8,832	14,898	20,056	7,517	1,273
Maple-birch															
Sawtimber	238,197	--	--	1,195	601	3,267	5,546	8,243	12,935	21,855	19,481	56,862	77,016	25,632	5,564
Poletimber	160,178	--	--	303	505	754	6,437	4,565	9,765	21,390	15,459	42,297	45,151	11,624	1,928
Sapling & seedling	31,615	161	1,949	2,352	2,397	6,242	5,958	2,067	1,687	3,164	1,867	3,068	364	339	--
All stands	429,990	161	1,949	3,850	3,503	10,263	17,941	14,875	24,387	46,409	36,807	102,227	122,531	37,595	7,492
Aspen															
Sawtimber	80,087	--	79	903	1,371	1,640	5,077	4,426	6,712	14,158	6,839	14,522	17,671	3,687	3,002
Poletimber	134,742	--	93	652	1,304	4,573	8,472	9,174	15,596	22,219	13,548	25,339	27,395	4,815	1,562
Sapling & seedling	52,783	6,701	6,339	7,612	5,653	9,074	5,504	4,319	5,112	1,006	644	803	16	--	--
All stands	267,612	6,701	6,511	9,167	8,328	15,287	19,053	17,919	27,420	37,383	21,031	40,664	45,082	8,502	4,564
Paper birch															
Sawtimber	12,247	--	--	97	--	354	342	1,626	731	1,312	563	2,748	2,456	1,294	724
Poletimber	31,789	--	--	--	278	732	918	682	2,422	2,966	1,846	6,728	10,331	4,249	637
Sapling & seedling	3,896	675	-43	549	715	361	537	474	34	456	11	127	--	--	--
All stands	47,932	675	-43	646	993	1,447	1,797	2,782	3,187	4,734	2,420	9,603	12,787	5,543	1,361
Exotic															
Sawtimber	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sapling & seedling	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
All stands	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nonstocked	1,745	845	281	75	434	22	-57	88	66	--	-9	--	--	--	--
All types															
Sawtimber	762,781	--	269	3,777	7,811	15,416	27,813	36,664	54,726	77,973	63,916	179,790	191,223	76,202	27,201
Poletimber	538,415	--	121	1,416	3,210	7,824	25,967	24,738	41,322	75,044	56,249	119,648	129,498	38,082	15,296
Sapling & seedling	140,078	8,290	11,029	15,729	18,658	23,562	20,915	10,492	12,273	6,612	4,501	6,388	966	663	--
Nonstocked	1,745	845	281	75	434	22	-57	88	66	--	-9	--	--	--	--
All stands	1,443,019	9,135	11,700	20,997	30,113	46,824	74,638	71,982	108,387	159,629	124,657	305,826	321,687	114,947	42,497

Table 46.--Net annual growth of growing stock and sawtimber on timberland by species group[1/] and county, Wisconsin, 1982

GROWING STOCK

County	All species	Softwoods			Hardwoods				
		Red and jack pine	Spruce-fir	Other softwoods	Select red oak	Other oaks	Hard maple	Aspen	Other hardwoods
	Thousand cubic feet								
Northeast Unit									
Florence	7,850	546	1,061	772	269	-5	1,635	1,919	1,653
Forest	18,614	890	2,999	1,682	77	--	4,854	2,404	5,708
Langlade	14,758	212	2,066	926	205	-10	3,517	2,692	5,150
Lincoln	12,471	1,972	1,836	386	400	2	1,156	2,681	4,038
Menominee	6,316	243	288	1,943	616	83	1,188	730	1,225
Marinette	24,535	4,084	2,454	3,334	1,411	-345	1,877	3,658	8,062
Oconto	13,766	2,420	353	1,824	814	71	908	2,475	4,901
Oneida	17,015	2,757	3,042	1,561	580	-14	1,408	2,622	5,059
Shawano	9,139	1,380	396	1,818	437	85	1,300	346	3,377
Vilas	13,742	2,690	1,335	1,509	693	15	2,231	1,999	3,270
Total	138,206	17,194	15,830	15,755	5,502	-118	20,074	21,526	42,443
Northwest Unit									
Ashland	21,349	696	3,837	1,722	163	2	4,038	3,618	7,273
Barron	3,577	33	29	129	654	284	115	898	1,435
Bayfield	29,132	4,566	1,877	1,750	2,749	-91	2,880	6,152	9,249
Burnett	8,812	3,724	6	271	1,211	101	82	1,891	1,526
Douglas	20,638	4,181	4,213	503	792	12	900	3,834	6,203
Iron	13,206	194	3,216	1,475	258	--	2,629	1,328	4,106
Polk	6,102	544	48	127	1,043	278	221	1,270	2,571
Price	16,257	1,179	2,724	692	276	5	1,986	3,072	6,323
Rusk	12,545	449	592	270	854	128	1,328	3,042	5,882
Sawyer	21,783	1,230	2,790	1,269	1,291	137	2,171	3,326	9,569
Taylor	14,968	122	1,549	382	426	4	1,485	3,490	7,510
Washburn	10,858	2,457	209	482	1,003	233	660	2,564	3,250
Total	179,227	19,375	21,090	9,072	10,720	1,093	18,495	34,485	64,897
Central Unit									
Adams	7,525	4,031	--	555	214	1,784	--	588	353
Chippewa	7,070	190	85	294	562	399	598	1,846	3,096
Clark	10,810	651	117	351	1,257	806	241	3,548	3,839
Eau Claire	6,138	1,773	--	218	358	1,420	29	1,108	1,232
Jackson	13,268	4,510	--	825	1,563	2,453	--	1,692	2,225
Juneau	8,582	3,500	--	382	633	1,880	47	1,296	844
Marathon	12,567	520	455	970	976	57	1,813	2,420	5,356
Marquette	2,669	978	--	593	98	523	--	109	368
Monroe	5,832	746	--	395	1,279	1,260	72	460	1,620
Portage	6,230	2,018	82	979	295	808	151	822	1,075
Waupaca	6,731	1,320	345	1,183	487	511	267	469	2,149
Waushara	5,969	2,831	--	815	129	1,255	--	200	739
Wood	6,785	467	31	510	486	624	100	2,784	1,783
Total	100,176	23,535	1,115	8,070	8,337	13,780	3,318	17,342	24,679

(Table 46 continued on next page)

[1/] Species groups: other softwoods - primarily white pine, northern white-cedar, hemlock and tamarack; other hardwoods - primarily soft maple, paper birch, basswood, elm and ash.

(Table 46 continued)

County	GROWING STOCK								
		Softwoods			Hardwoods				
	All species	Red and jack pine	Spruce-fir	Other softwoods	Select red oak	Other oaks	Hard maple	Aspen	Other hardwoods
	Thousand cubic feet								
Southwest Unit									
Buffalo	5,292	328	--	--	1,119	936	21	903	1,985
Crawford	4,169	--	--	--	819	969	433	182	1,766
Dunn	5,409	1,545	--	46	977	776	222	435	1,408
Grant	4,647	--	--	51	739	1,341	306	771	1,439
Iowa	3,228	11	--	63	365	812	94	374	1,509
La Crosse	3,040	311	--	89	770	463	--	382	1,025
Lafayette	421	--	--	--	40	239	--	24	118
Pepin	827	--	--	8	201	75	55	119	369
Pierce	2,280	72	--	--	225	172	655	98	1,058
Richland	4,267	--	--	--	552	608	648	149	2,310
St.Croix	2,396	1,072	23	--	122	205	26	302	646
Sauk	4,898	218	41	67	1,226	702	137	346	2,161
Tempealeau	4,561	1,295	--	211	656	1,029	--	138	1,232
Vernon	4,794	--	--	69	833	929	505	291	2,167
Total	50,229	4,852	64	604	8,644	9,256	3,102	4,514	19,193
Southeast Unit									
Brown	1,590	--	--	41	89	36	195	186	1,043
Calumet	602	--	--	212	9	-	12	43	326
Columbia	3,079	763	122	54	109	929	--	473	629
Oane	2,194	75	--	53	159	939	--	189	779
Dodge	476	--	--	88	18	15	9	38	308
Door	3,215	--	124	1,205	52	-	362	363	1,109
Fond du Lac	965	240	--	19	50	114	117	182	243
Green	362	--	14	92	55	69	60	38	34
Green Lake	681	28	--	153	49	261	--	11	179
Jefferson	1,464	886	--	--	110	156	152	-43	203
Kenosha	198	--	--	85	25	38	--	--	50
Kewaunee	1,038	--	--	401	4	-12	258	-12	399
Manitowoc	903	--	149	487	57	8	156	212	-166
Milwaukee	--	--	--	--	--	--	--	--	--
Outagamie	1,462	95	--	208	20	48	71	80	940
Ozaukee	38	--	--	-48	--	13	78	-14	9
Racine	160	--	--	--	11	26	19	7	97
Rock	1,067	9	--	--	51	395	--	--	612
Sheboygan	1,352	17	255	210	113	36	208	54	459
Walworth	502	--	--	--	39	192	--	34	237
Washington	725	--	--	70	25	25	59	18	528
Waukesha	363	--	--	--	155	73	--	83	52
Winnebago	962	--	--	--	104	15	61	79	703
Total	23,398	2,113	664	3,330	1,304	3,376	1,817	2,021	8,773
All counties	491,236	67,069	38,763	36,831	34,507	27,387	46,806	79,888	159,985

(Table 46 continued on next page)

(Table 46 continued)

County	SAWTIMBER								
		Softwoods			Hardwoods				
	All species	Red and jack pine	Spruce-fir	Other softwoods	Select red oak	Other oaks	Hard maple	Aspen	Other hardwoods
	Thousand board feet[2/]								
Northeast Unit									
Florence	25,888	2,950	3,087	3,325	1,417	560	2,939	6,157	5,453
Forest	62,690	6,275	11,743	6,346	290	--	10,917	8,991	18,128
Langlade	34,589	1,282	4,873	2,583	810	--	6,596	7,461	10,984
Lincoln	28,128	2,137	4,455	1,479	1,077	--	2,641	9,063	7,276
Menominee	21,521	648	299	8,519	4,244	529	3,874	1,274	2,134
Marinette	55,003	10,612	5,431	9,682	2,993	2,390	2,844	9,518	11,533
Oconto	42,173	13,153	1,492	6,805	685	150	564	9,022	10,302
Oneida	45,810	11,853	7,615	6,809	4,288	508	1,319	6,016	7,402
Shawano	33,838	4,330	823	4,617	2,965	772	7,990	1,689	10,652
Vilas	42,891	10,841	3,011	6,393	2,822	66	4,947	7,914	6,897
Total	392,531	64,081	42,829	56,558	21,591	4,975	44,631	67,105	90,761
Northwest Unit									
Ashland	69,043	4,943	15,954	10,516	1,015	5	7,341	9,738	19,531
Barron	14,023	1,336	--	877	3,551	1,891	343	2,035	3,990
Bayfield	88,831	19,362	7,887	9,233	9,576	73	4,505	25,431	12,764
Burnett	29,891	5,992	--	1,135	5,720	3,859	288	8,532	4,365
Douglas	65,732	16,186	14,398	2,737	2,713	40	2,059	15,802	11,797
Iron	35,890	1,165	10,257	6,458	225	--	3,468	5,785	8,532
Polk	19,312	1,132	165	701	5,688	2,669	276	3,532	5,149
Price	40,626	4,872	5,520	5,294	470	20	3,735	7,025	13,690
Rusk	34,592	1,115	1,766	1,776	3,467	381	4,217	7,715	14,155
Sawyer	64,350	7,558	7,108	6,908	5,774	752	3,458	12,802	19,990
Taylor	35,692	881	4,085	1,763	1,766	16	3,787	4,954	18,440
Washburn	25,319	4,644	550	1,924	3,575	781	569	8,680	4,596
Total	523,301	69,186	67,690	49,322	43,540	10,487	34,046	112,031	136,999
Central Unit									
Adams	18,502	7,325	--	1,953	570	7,342	--	714	598
Chippewa	20,619	775	86	1,399	3,065	1,941	772	4,896	7,685
Clark	25,010	3,271	--	2,073	4,262	2,382	790	8,315	3,917
Eau Claire	12,521	1,726	--	1,618	1,688	4,278	-54	2,643	622
Jackson	32,515	8,394	--	3,360	6,430	8,726	--	2,860	2,745
Juneau	25,120	9,334	--	1,354	3,999	6,110	292	1,610	2,421
Marathon	30,080	605	731	3,625	3,281	266	6,840	6,301	8,431
Marquette	7,911	977	--	2,329	401	2,575	--	833	796
Monroe	18,640	2,184	--	2,532	6,616	3,668	137	1,434	2,069
Portage	14,462	2,320	--	2,673	1,547	2,694	98	1,734	3,396
Waupaca	28,826	7,163	617	4,346	2,826	2,228	2,438	690	8,518
Waushara	14,764	3,820	--	3,233	472	4,346	--	649	2,244
Wood	18,215	2,877	--	2,608	3,222	3,400	178	2,134	3,796
Total	267,185	50,771	1,434	33,103	38,379	49,956	11,491	34,813	47,238

(Table 46 continued on next page)

[2/] International 1/4-inch rule.

(Table 46 continued)

County	SAWTIMBER								
		Softwoods			Hardwoods				
	All species	Red and jack pine	Spruce-fir	Other softwoods	Select red oak	Other oaks	Hard maple	Aspen	Other hardwoods
	Thousand board feet[2/]								
Southwest Unit									
Buffalo	20,490	187	--	--	4,829	4,372	105	3,845	7,152
Crawford	14,998	--	--	--	3,643	3,265	912	702	6,476
Dunn	17,987	3,193	--	194	4,062	2,896	1,157	1,821	4,664
Grant	17,748	--	--	266	3,665	7,297	1,521	269	4,730
Iowa	9,600	--	--	318	1,681	3,298	211	334	3,758
La Crosse	14,108	2,791	--	579	4,548	2,542	--	-82	3,730
Lafayette	1,340	--	--	--	208	1,366	--	77	-311
Pepin	2,960	--	--	43	963	317	285	1,044	308
Pierce	10,645	237	--	--	1,469	684	2,720	408	5,127
Richland	14,254	--	--	--	2,362	2,708	2,500	832	5,852
St.Croix	6,839	1,147	--	--	837	603	123	2,442	1,687
Sauk	18,417	261	--	326	6,039	5,582	260	1,449	4,500
Tempealeau	15,250	--	--	--	3,560	6,068	--	926	4,696
Vernon	18,056	--	--	213	4,985	4,763	2,242	-249	6,102
Total	182,692	7,816	--	1,939	42,851	45,761	12,036	13,818	58,471
Southeast Unit									
Brown	5,423	--	--	21	422	143	1,121	502	3,214
Calumet	1,083	--	--	467	95	-	68	--	453
Columbia	8,865	--	--	114	828	5,454	--	1,114	1,355
Dane	11,285	126	--	164	883	6,002	--	762	3,348
Dodge	1,461	--	--	--	91	75	51	182	1,062
Door	9,937	--	1,182	2,863	114	-	1,753	1,815	2,210
Fond du Lac	4,912	1,574	--	114	244	604	380	24	1,972
Green	2,911	--	78	521	292	264	238	-61	1,579
Green Lake	789	--	--	--	247	227	--	--	315
Jefferson	2,568	117	--	--	496	599	696	--	660
Kenosha	1,093	--	--	385	171	244	--	--	293
Kewaunee	3,913	--	--	1,711	24	-58	1,262	-111	1,085
Manitowoc	4,715	--	--	1,730	347	96	1,037	1,193	312
Milwaukee	--	--	--	--	--	--	--	--	--
Outagamie	4,496	812	--	796	71	260	65	694	1,798
Ozaukee	350	--	--	285	--	63	-132	--	134
Racine	305	--	--	--	57	108	98	--	42
Rock	2,795	51	--	--	265	1,783	--	--	696
Sheboygan	3,204	--	196	538	623	134	558	124	1,031
Walworth	2,288	--	--	--	442	902	--	22	922
Washington	1,402	--	--	367	132	112	286	147	358
Waukesha	1,540	--	--	--	726	354	--	131	329
Winnebago	1,975	--	--	--	783	68	30	357	737
Total	77,310	2,680	1,456	10,076	7,353	17,434	7,511	6,895	23,905
All counties	1,443,019	194,534	113,409	150,998	153,714	128,613	109,715	234,662	357,374

[2/] International 1/4-inch rule.

Table 47.--Current annual timber removals of growing stock on timberland by species group and Forest Survey Unit, Wisconsin, 1982

(In thousand cubic feet)

Species group	All Units	Forest Survey Unit				
		Northeast	Northwest	Central	Southwest	Southeast
Softwoods						
Jack pine	14,552	3,216	6,263	4,740	315	18
Red pine	16,502	5,143	4,150	5,405	1,648	156
White pine	7,967	3,073	2,104	2,454	230	106
White spruce	1,976	1,235	741	--	--	1/
Black spruce	1,235	875	323	37	--	--
Balsam fir	9,351	6,388	2,921	41	--	1
Hemlock	4,839	3,871	743	189	--	36
Tamarack	545	125	323	96	--	1
Northern white-cedar	2,421	834	1,018	29	--	540
Other softwoods	--	--	--	--	--	--
Total	59,388	24,760	18,586	12,991	2,193	858
Hardwoods						
White oak	10,025	230	1,118	3,387	3,972	1,318
Select red oak	28,156	3,416	5,451	7,635	10,627	1,027
Other red oak	11,211	557	535	4,381	4,981	757
Hickory	644	164	65	111	231	73
Basswood	7,199	2,668	1,957	1,061	1,293	220
Beech	321	225	--	17	--	79
Yellow birch	3,027	1,449	1,191	307	39	41
Hard maple	21,064	10,085	6,877	2,371	1,234	497
Soft maple	10,322	3,879	2,664	1,845	1,208	726
Elm	15,600	5,894	5,158	2,257	1,729	562
Ash	6,675	1,586	2,703	1,312	411	663
Cottonwood	120	13	--	3	85	19
Balsam poplar	148	90	47	--	--	11
Bigtooth aspen	22,002	8,296	9,682	2,638	1,229	157
Quaking aspen	74,114	32,353	34,064	6,750	566	381
Paper birch	13,333	6,710	5,134	937	287	265
Black walnut	134	--	--	--	99	35
Other hardwoods 2/	1,475	321	171	152	438	393
Total	225,570	77,936	76,817	35,164	28,429	7,224
All species	284,958	102,696	95,403	48,155	30,622	8,082

1/ Less than 500 cubic feet.

2/ Includes willow, hackberry, river birch, black cherry and butternut.

Table 48.--Current annual timber removals of sawtimber on timberland by species group and Forest Survey Unit, Wisconsin, 1982

(In thousand board feet) 1/

Species group	All Units	Forest Survey Unit				
		Northeast	Northwest	Central	Southwest	Southeast
Softwoods						
Jack pine	20,320	4,581	9,315	6,070	354	--
Red pine	35,981	13,098	12,770	8,634	1,464	15
White pine	36,240	14,046	9,788	11,064	854	488
White spruce	5,155	2,497	2,656	--	--	2
Black spruce	884	730	154	--	--	--
Balsam fir	17,602	10,778	6,753	68	--	3
Hemlock	12,433	10,764	643	850	--	176
Tamarack	654	174	386	90	--	4
Northern white-cedar	4,383	2,043	1,293	123	--	924
Other softwoods	--	--	--	--	--	--
Total	133,652	58,711	43,758	26,899	2,672	1,612
Hardwoods						
White oak	41,499	793	3,934	13,363	18,124	5,285
Select red oak	120,169	12,002	20,781	33,359	49,484	4,543
Other red oak	43,856	2,049	2,243	15,930	21,004	2,630
Hickory	2,294	477	178	420	1,027	192
Basswood	25,798	8,337	7,003	4,366	5,216	876
Beech	1,312	932	--	80	--	300
Yellow birch	8,206	5,004	2,431	664	2	105
Hard maple	75,889	37,084	21,711	9,249	6,206	1,639
Soft maple	28,684	9,750	6,226	6,153	3,545	3,010
Elm	52,498	21,501	16,307	6,275	6,436	1,979
Ash	16,991	4,028	4,964	3,879	1,875	2,245
Cottonwood	568	57	--	18	406	87
Balsam poplar	306	218	51	--	--	37
Bigtooth aspen	70,020	24,430	30,821	9,960	4,032	777
Quaking aspen	183,661	81,457	83,522	16,082	1,804	796
Paper birch	16,907	9,109	5,413	1,314	495	576
Black walnut	519	--	--	--	338	181
Other hardwoods 2/	3,498	654	225	375	1,245	999
Total	692,675	217,882	205,810	121,487	121,239	26,257
All species	826,327	276,593	249,568	148,386	123,911	27,869

1/ International 1/4-inch rule.

2/ Includes willow, hackberry, river birch, black cherry and butternut.

Table 49.--Average annual timber removals of growing stock on timberland by species group and county, Wisconsin, 1967-1982[1/]

(In thousand cubic feet)

Species group	All Units	Total Northeast Unit	Northeast Unit									
			Florence	Forest	Langlade	Lincoln	Menominee	Marinette	Oconto	Oneida	Shawano	Vilas
Softwoods												
Jack pine	18,173	8,684	925	3,369	240	--	--	935	1,394	1,302	--	519
Red pine	5,156	3,756	72	847	111	383	--	160	109	1,848	--	226
White pine	5,382	2,777	82	468	--	--	965	123	126	641	192	180
White spruce	1,975	1,115	226	615	75	--	--	92	--	107	--	--
Black spruce	1,070	484	48	53	--	--	--	86	--	279	--	18
Balsam fir	9,101	5,092	98	1,302	435	208	--	1,115	70	1,565	26	273
Hemlock	4,840	2,819	145	220	67	99	532	--	96	737	12	911
Tamarack	1,159	107	48	--	--	--	--	22	--	--	37	--
Eastern redcedar	--	--	--	--	--	--	--	--	--	--	--	--
Northern white-cedar	2,854	1,825	145	--	203	--	--	491	27	108	851	--
Other softwoods	--	--	--	--	--	--	--	--	--	--	--	--
Total	49,710	26,659	1,789	6,874	1,131	690	1,497	3,024	1,822	6,587	1,118	2,127
Hardwoods												
White oak	5,369	79	--	--	--	--	41	--	--	--	38	--
Select red oak	21,046	1,995	57	67	39	--	323	579	36	249	365	280
Other red oak	5,890	623	--	--	--	--	--	395	--	--	228	--
Select hickory	237	--	--	--	--	--	--	--	--	--	--	--
Other hickory	251	--	--	--	--	--	--	--	--	--	--	--
Basswood	8,083	3,083	331	910	290	1,058	148	160	37	149	--	--
Beech	45	45	--	--	--	--	45	--	--	--	--	--
Yellow birch	3,560	1,486	588	309	302	24	170	--	--	--	93	--
Hard maple	14,463	5,324	949	1,976	602	926	108	111	113	150	203	186
Soft maple	10,043	2,165	--	59	50	491	159	783	400	97	32	94
Elm	17,949	5,796	1,138	1,132	1,147	395	1,057	151	162	51	563	--
Black ash	2,893	518	--	79	86	107	93	104	--	--	49	--
White & green ash	3,091	725	--	--	45	130	50	--	327	36	137	--
Cottonwood	129	56	--	--	--	--	--	--	56	--	--	--
Willow	178	--	--	--	--	--	--	--	--	--	--	--
Hackberry	51	--	--	--	--	--	--	--	--	--	--	--
Balsam poplar	218	191	88	37	--	--	--	66	--	--	--	--
Bigtooth aspen	17,407	6,644	--	--	398	--	706	3,191	823	258	--	1,268
Quaking aspen	46,327	18,832	2,575	2,100	2,206	1,669	189	4,303	1,490	2,715	68	1,517
Paper birch	12,543	6,452	191	430	511	412	218	1,477	431	1,417	315	1,050
River birch	213	--	--	--	--	--	--	--	--	--	--	--
Black cherry	700	322	--	97	94	--	--	--	37	41	53	--
Black walnut	71	--	--	--	--	--	--	--	--	--	--	--
Butternut	139	68	--	--	--	--	--	68	--	--	--	--
Other hardwoods	8	--	--	--	--	--	--	--	--	--	--	--
Total	170,904	54,404	5,917	7,196	5,770	5,212	3,307	11,388	3,912	5,163	2,144	4,395
All species	220,614	81,063	7,706	14,070	6,901	5,902	4,804	14,412	5,734	11,750	3,262	6,522

(Table 49 continued on next page)

1/ The corrected volumes shown in this table supercede the volumes reported in Resource Bulletins NC-73, NC-78, NC-84, NC-86, and NC-87.

(Table 49 continued)

Species group	Total Northwest Unit	Northwest Unit											
		Ashland	Barron	Bayfield	Burnett	Douglas	Iron	Polk	Price	Rusk	Sawyer	Taylor	Washburn
Softwoods													
Jack pine	6,209	--	--	1,072	1,963	1,891	--	466	12	--	474	--	331
Red pine	314	--	--	161	--	--	90	--	--	--	--	--	63
White pine	1,084	--	--	256	77	44	--	229	--	--	478	--	--
White spruce	860	552	--	137	--	--	103	--	--	--	--	38	30
Black spruce	586	227	--	--	--	195	54	--	--	--	15	--	95
Balsam fir	3,911	1,496	--	19	--	430	217	--	131	40	1,260	318	--
Hemlock	1,801	237	--	--	--	--	832	--	--	--	526	206	--
Tamarack	1,009	--	121	--	--	346	--	--	394	--	--	--	148
Eastern redcedar	--	--	--	--	--	--	--	--	--	--	--	--	--
Northern white-cedar	527	--	--	--	66	--	53	--	408	--	--	--	--
Other softwoods	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	16,301	2,512	121	1,645	2,106	2,906	1,349	695	945	40	2,753	562	667
Hardwoods													
White oak	445	--	93	--	57	--	--	273	--	--	--	--	22
Select red oak	4,137	--	963	992	281	43	--	1,262	53	258	31	--	254
Other red oak	267	--	195	--	72	--	--	--	--	--	--	--	--
Select hickory	--	--	--	--	--	--	--	--	--	--	--	--	--
Other hickory	--	--	--	--	--	--	--	--	--	--	--	--	--
Basswood	2,572	225	110	251	46	14	--	144	1,013	222	73	474	--
Beech	--	--	--	--	--	--	--	--	--	--	--	--	--
Yellow birch	1,164	--	--	46	--	--	403	--	204	197	134	180	--
Hard maple	5,369	1,364	286	691	--	--	83	121	1,340	916	182	386	--
Soft maple	3,223	306	238	1,135	46	69	76	107	146	140	152	762	46
Elm	4,056	841	--	50	135	112	73	190	911	876	38	830	--
Black ash	1,527	42	--	647	181	134	--	--	92	431	--	--	--
White & green ash	799	186	--	118	64	--	--	--	152	146	35	98	--
Cottonwood	--	--	--	--	--	--	--	--	--	--	--	--	--
Willow	--	--	--	--	--	--	--	--	--	--	--	--	--
Hackberry	--	--	--	--	--	--	--	--	--	--	--	--	--
Balsam poplar	27	--	--	27	--	--	--	--	--	--	--	--	--
Bigtooth aspen	8,144	137	94	2,854	1,275	1,195	304	342	163	--	892	60	828
Quaking aspen	19,796	3,077	529	3,352	1,189	1,727	1,921	798	1,371	188	1,845	1,664	2,135
Paper birch	4,776	518	--	1,794	73	431	366	81	363	416	400	134	200
River birch	--	--	--	--	--	--	--	--	--	--	--	--	--
Black cherry	113	--	--	--	--	--	--	--	56	--	40	17	--
Black walnut	--	--	--	--	--	--	--	--	--	--	--	--	--
Butternut	--	--	--	--	--	--	--	--	--	--	--	--	--
Other hardwoods	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	56,415	6,696	2,508	11,957	3,419	3,725	3,226	3,318	5,864	3,790	3,822	4,605	3,485
All species	72,716	9,208	2,629	13,602	5,525	6,631	4,575	4,013	6,809	3,830	6,575	5,167	4,152

(Table 49 continued on next page)

(Table 49 continued)

Species group	Total Central Unit	Central Unit												
		Adams	Chippewa	Clark	Eau Claire	Jackson	Juneau	Marathon	Marquette	Monroe	Portage	Waupaca	Waushara	Wood
Softwoods														
Jack pine	3,280	976	--	229	301	697	450	29	--	476	--	--	--	122
Red pine	1,086	81	68	--	--	--	--	437	292	--	175	--	--	33
White pine	1,514	--	--	--	--	--	--	175	460	--	411	265	106	97
White spruce	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Black spruce	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Balsam fir	63	--	--	--	--	--	--	63	--	--	--	--	--	--
Hemlock	220	--	--	--	--	--	--	220	--	--	--	--	--	--
Tamarack	43	--	43	--	--	--	--	--	--	--	--	--	--	--
Eastern redcedar	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Northern white-cedar	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other softwoods	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	6,206	1,057	111	229	301	697	450	924	752	476	586	265	106	252
Hardwoods														
White oak	1,145	122	--	417	142	--	--	--	--	29	54	304	--	77
Select red oak	2,811	--	361	375	670	94	--	113	--	383	114	574	--	127
Other red oak	1,584	537	--	--	91	68	378	--	--	53	214	--	64	179
Select hickory	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other hickory	44	--	--	--	--	--	--	44	--	--	--	--	--	--
Basswood	1,164	--	449	148	--	--	--	290	--	--	--	--	--	277
Beech	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Yellow birch	866	--	36	--	--	--	--	678	--	--	--	51	--	101
Hard maple	1,620	--	95	197	--	--	--	926	--	--	--	284	--	118
Soft maple	1,240	--	142	55	--	29	--	260	--	31	249	341	--	133
Elm	4,558	--	159	832	--	--	--	2,670	--	--	24	485	--	388
Black ash	524	--	372	42	--	--	--	--	33	--	--	--	--	77
White & green ash	612	--	52	--	36	--	--	391	--	--	29	--	--	104
Cottonwood	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Willow	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hackberry	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Balsam poplar	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bigtooth aspen	1,111	53	150	65	81	60	83	136	--	129	--	137	--	217
Quaking aspen	7,486	136	1,808	1,398	478	65	75	2,164	--	--	316	--	--	1,046
Paper birch	969	--	--	137	--	--	--	661	--	--	--	--	--	171
River birch	30	--	--	--	--	30	--	--	--	--	--	--	--	--
Black cherry	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Black walnut	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Butternut	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other hardwoods	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	25,764	848	3,624	3,666	1,498	346	536	8,333	33	625	1,000	2,176	64	3,015
All species	31,970	1,905	3,735	3,895	1,799	1,043	986	9,257	785	1,101	1,586	2,441	170	3,267

(Table 49 continued on next page)

(Table 49 continued)

Species group	Total Southwest Unit	Southwest Unit														
		Buffalo	Crawford	Dunn	Grant	Iowa	La Crosse	Lafayette	Pepin	Pierce	Richland	St.Croix	Sauk	Trempealeau	Vernon
Softwoods															
Jack pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Red pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
White pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
White spruce	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Black spruce	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Balsam fir	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hemlock	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tamarack	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Eastern redcedar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Northern white-cedar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other softwoods	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardwoods															
White oak	2,586	78	45	73	353	154	56	--	45	60	49	--	987	439	247
Select red oak	10,176	1,479	299	568	432	86	1,091	--	336	339	--	126	4,612	300	508
Other red oak	2,646	545	268	587	--	--	171	--	--	--	--	204	328	316	227
Select hickory	126	73	--	--	--	--	--	--	--	--	--	--	43	--	10
Other hickory	157	--	--	--	--	--	--	--	--	--	--	--	--	--	157
Basswood	1,255	--	--	232	--	--	--	--	--	244	101	31	574	--	73
Beech	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Yellow birch	44	--	--	--	--	--	--	--	--	--	--	--	44	--	--
Hard maple	1,329	--	--	--	213	--	--	--	--	59	--	921	136	--	--
Soft maple	1,310	400	--	117	--	--	131	--	--	--	--	--	300	362	--
Elm	1,814	68	--	108	268	227	167	--	--	130	283	281	139	101	42
Black ash	188	--	--	--	--	--	188	--	--	--	--	--	--	--	--
White & green ash	312	30	--	--	--	40	--	--	--	53	54	--	--	75	60
Cottonwood	73	--	--	--	--	--	--	--	--	--	73	--	--	--	--
Willow	178	24	--	--	--	--	--	--	--	--	--	--	--	154	--
Hackberry	51	--	--	--	--	--	--	--	--	--	51	--	--	--	--
Balsam poplar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bigtooth aspen	1,508	--	--	89	--	--	--	--	--	--	214	--	1,143	--	62
Quaking aspen	86	--	--	86	--	--	--	--	--	--	--	--	--	--	--
Paper birch	211	163	--	--	--	--	--	--	--	--	--	48	--	--	--
River birch	183	66	--	--	--	--	117	--	--	--	--	--	--	--	--
Black cherry	54	--	--	--	--	--	--	--	--	--	--	--	--	31	23
Black walnut	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Butternut	71	71	--	--	--	--	--	--	--	--	--	--	--	--	--
Other hardwoods	8	--	--	--	--	--	--	--	--	--	--	--	--	--	8
Total	24,366	2,997	612	1,860	1,266	507	1,921	--	381	885	825	1,611	8,306	1,778	1,417
All species	24,366	2,997	612	1,860	1,266	507	1,921	--	381	885	825	1,611	8,306	1,778	1,417

(Table 49 continued on next page)

(Table 49 continued)

Species group	Total Southeast Unit	Southeast Unit												
		Brown	Calumet	Columbia	Dane	Dodge	Door	Fond du Lac	Green	Green Lake	Jefferson	Kenosha	Kewaunee	Manitowoc
Softwoods														
Jack pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Red pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--
White pine	7	--	--	--	--	--	7	--	--	--	--	--	--	--
White spruce	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Black spruce	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Balsam fir	35	--	--	--	--	--	--	--	--	--	--	--	35	--
Hemlock	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tamarack	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Eastern redcedar	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Northern white-cedar	502	--	--	--	--	--	369	--	--	--	--	--	133	--
Other softwoods	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	544	--	--	--	--	--	376	--	--	--	--	--	168	--
Hardwoods														
White oak	1,114	--	--	286	552	--	--	--	74	--	39	--	--	--
Select red oak	1,927	--	--	642	412	--	--	--	214	123	--	38	--	--
Other red oak	770	--	--	435	295	--	--	--	--	--	--	--	--	--
Select hickory	111	--	--	--	--	--	--	--	--	--	--	--	--	--
Other hickory	50	--	--	--	--	50	--	--	--	--	--	--	--	--
Basswood	9	--	--	--	--	--	--	--	--	--	--	9	--	--
Beech	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Yellow birch	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hard maple	821	--	--	--	--	--	--	--	--	--	--	--	--	--
Soft maple	2,105	867	--	--	--	--	--	41	--	--	36	--	--	119
Elm	1,725	530	--	--	--	23	81	41	438	--	--	--	247	--
Black ash	136	--	--	--	--	--	--	--	--	--	57	--	--	48
White & green ash	643	--	--	--	--	--	196	--	--	--	--	--	--	--
Cottonwood	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Willow	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hackberry	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Balsam poplar	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bigtooth aspen	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Quaking aspen	127	--	--	26	--	--	101	--	--	--	--	--	--	--
Paper birch	135	--	--	25	--	--	37	--	--	--	--	--	--	--
River birch	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Black cherry	211	--	--	26	185	--	--	--	--	--	--	--	--	--
Black walnut	71	--	--	--	--	--	--	--	35	--	--	--	--	--
Butternut	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other hardwoods	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	9,955	1,397	--	1,440	1,444	73	415	82	761	123	132	47	247	167
All species	10,499	1,397	--	1,440	1,444	73	791	82	761	123	132	47	415	167

(Table 49 continued on next page)

(Table 49 continued)

Species group	Southeast Unit									
	Milwaukee	Outagamie	Ozaukee	Racine	Rock	Sheboygen	Walworth	Washington	Waukesha	Winnebago
Softwoods										
Jack pine	--	--	--	--	--	--	--	--	--	--
Red pine	--	--	--	--	--	--	--	--	--	--
White pine	--	--	--	--	--	--	--	--	--	--
White spruce	--	--	--	--	--	--	--	--	--	--
Black spruce	--	--	--	--	--	--	--	--	--	--
Balsam fir	--	--	--	--	--	--	--	--	--	--
Hemlock	--	--	--	--	--	--	--	--	--	--
Tamarack	--	--	--	--	--	--	--	--	--	--
Eastern redcedar	--	--	--	--	--	--	--	--	--	--
Northern white-cedar	--	--	--	--	--	--	--	--	--	--
Other softwoods	--	--	--	--	--	--	--	--	--	--
Total	--	--	--	--	--	--	--	--	--	--
Hardwoods										
White oak	--	58	--	--	--	40	65	--	--	--
Select red oak	--	199	--	--	--	169	--	--	40	90
Other red oak	--	--	--	--	--	--	--	--	40	--
Select hickory	--	--	--	--	--	--	--	111	--	--
Other hickory	--	--	--	--	--	--	--	--	--	--
Basswood	--	--	--	--	--	--	--	--	--	--
Beech	--	--	--	--	--	--	--	--	--	--
Yellow birch	--	--	--	--	--	--	--	--	--	--
Hard maple	--	--	--	--	--	295	--	408	--	118
Soft maple	--	868	--	--	--	153	--	--	--	21
Elm	--	224	--	--	--	--	--	37	--	104
Black ash	--	--	--	--	--	31	--	--	--	--
White & green ash	--	84	--	--	--	363	--	--	--	--
Cottonwood	--	--	--	--	--	--	--	--	--	--
Willow	--	--	--	--	--	--	--	--	--	--
Hackberry	--	--	--	--	--	--	--	--	--	--
Balsam poplar	--	--	--	--	--	--	--	--	--	--
Bigtooth aspen	--	--	--	--	--	--	--	--	--	--
Quaking aspen	--	--	--	--	--	--	--	--	--	--
Paper birch	--	73	--	--	--	--	--	--	--	--
River birch	--	--	--	--	--	--	--	--	--	--
Black cherry	--	--	--	--	--	--	--	--	--	--
Black walnut	--	36	--	--	--	--	--	--	--	--
Butternut	--	--	--	--	--	--	--	--	--	--
Other hardwoods	--	--	--	--	--	--	--	--	--	--
Total	--	1,542	--	--	--	1,051	65	556	80	333
All species	--	1,542	--	--	--	1,051	65	556	80	333

Table 50.--Average annual timber removals of sawtimber on timberland by species group and county Wisconsin, 1967-1982[1/]

(In thousand board feet)[2/]

Species group	All Units	Total Northeast Unit	Northeast Unit									
			Florence	Forest	Langlade	Lincoln	Menominee	Marinette	Oconto	Oneida	Shawano	Vilas
Softwoods												
Jack pine	34,414	13,812	1,002	3,665	259	--	--	2,606	1,517	4,017	--	746
Red pine	15,289	12,228	414	3,968	107	601	--	--	627	5,286	--	1,225
White pine	27,661	14,338	500	2,472	--	--	5,373	685	666	2,700	972	970
White spruce	7,022	3,783	590	2,176	353	--	--	393	--	271	--	--
Black spruce	1,438	470	--	--	--	--	--	--	--	470	--	--
Balsam fir	19,673	10,201	272	2,275	810	298	--	2,332	211	3,550	--	453
Hemlock	21,638	12,214	677	856	287	474	2,487	--	252	3,327	--	3,854
Tamarack	2,835	128	--	--	--	--	--	128	--	--	--	--
Eastern redcedar	--	--	--	--	--	--	--	--	--	--	--	--
Northern white-cedar	4,767	3,443	93	--	83	--	--	1,031	--	355	1,881	--
Other softwoods	--	--	--	--	--	--	--	--	--	--	--	--
Total	134,737	70,617	3,548	15,412	1,899	1,373	7,860	7,175	3,273	19,976	2,853	7,248
Hardwoods												
White oak	21,920	380	--	--	--	--	197	--	--	--	183	--
Select red oak	90,266	8,387	276	329	190	--	1,407	2,130	177	1,207	1,767	904
Other red oak	22,525	1,455	--	--	--	--	--	390	--	--	1,065	--
Select hickory	440	--	--	--	--	--	--	--	--	--	--	--
Other hickory	500	--	--	--	--	--	--	--	--	--	--	--
Basswood	28,081	8,488	1,160	3,400	501	1,982	728	--	177	540	--	--
Beech	224	224	--	--	--	--	224	--	--	--	--	--
Yellow birch	14,762	6,757	3,153	1,537	1,173	--	894	--	--	--	--	--
Hard maple	45,946	17,869	3,631	6,718	1,576	3,765	551	--	--	--	1,020	608
Soft maple	23,916	3,439	--	324	232	1,931	201	387	192	--	--	172
Elm	66,652	20,589	3,653	3,573	4,110	1,604	4,113	180	584	224	2,548	--
Black ash	4,323	1,173	--	--	--	594	579	--	--	--	--	--
White & green ash	12,158	1,900	--	--	220	500	--	--	357	174	649	--
Cottonwood	310	--	--	--	--	--	--	--	--	--	--	--
Willow	442	--	--	--	--	--	--	--	--	--	--	--
Hackberry	233	--	--	--	--	--	--	--	--	--	--	--
Balsam poplar	656	656	365	--	--	--	--	291	--	--	--	--
Bigtooth aspen	38,249	11,012	--	--	1,269	--	1,124	4,147	2,318	305	--	1,849
Quaking aspen	80,712	31,106	5,752	3,917	5,275	1,241	--	3,184	3,555	4,004	--	4,178
Paper birch	18,872	6,755	--	1,055	873	344	407	1,688	252	1,587	--	549
River birch	307	--	--	--	--	--	--	--	--	--	--	--
Black cherry	1,970	1,005	--	233	302	--	--	--	213	--	257	--
Black walnut	185	--	--	--	--	--	--	--	--	--	--	--
Butternut	654	197	--	--	--	--	--	197	--	--	--	--
Other hardwoods	--	--	--	--	--	--	--	--	--	--	--	--
Total	474,303	121,392	17,990	21,086	15,721	11,961	10,425	12,594	7,825	8,041	7,489	8,260
All species	609,040	192,009	21,538	36,498	17,620	13,334	18,285	19,769	11,098	28,017	10,342	15,508

(Table 50 continued on next page)

[1/] The corrected volumes shown in this table supercede the volumes reported in Resource Bulletins NC-73, NC-78, NC-84, NC-86, and NC-87.

[2/] International 1/4-inch rule.

(Table 50 continued)

Species group	Total Northwest Unit	Northwest Unit											
		Ashland	Barron	Bayfield	Burnett	Douglas	Iron	Polk	Price	Rusk	Sawyer	Taylor	Washburn
Softwoods													
Jack pine	10,482	--	--	1,436	2,552	2,122	--	1,541	63	--	2,040	--	728
Red pine	1,818	--	--	924	--	--	519	--	--	--	--	--	375
White pine	5,752	--	--	1,408	412	--	--	1,350	--	--	2,582	--	--
White spruce	3,239	1,624	--	740	--	--	525	--	--	--	--	201	149
Black spruce	968	809	--	--	--	159	--	--	--	--	--	--	--
Balsam fir	9,472	3,260	--	--	--	1,558	208	--	258	--	3,892	296	--
Hemlock	8,392	1,065	--	--	--	--	4,024	--	--	--	2,432	871	--
Tamarack	2,707	--	657	--	--	593	--	--	1,297	--	--	--	160
Eastern redcedar	--	--	--	--	--	--	--	--	--	--	--	--	--
Northern white-cedar	1,019	--	--	--	273	--	279	--	467	--	--	--	--
Other softwoods	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	43,849	6,758	657	4,508	3,237	4,432	5,555	2,891	2,085	--	10,946	1,368	1,412
Hardwoods													
White oak	937	--	304	--	167	--	--	466	--	--	--	--	--
Select red oak	11,528	--	2,974	2,019	190	--	--	4,965	258	909	--	--	213
Other red oak	1,206	--	929	--	277	--	--	--	--	--	--	--	--
Select hickory	--	--	--	--	--	--	--	--	--	--	--	--	--
Other hickory	--	--	--	--	--	--	--	--	--	--	--	--	--
Basswood	8,145	825	--	1,218	169	--	--	721	2,646	1,079	168	1,319	--
Beech	--	--	--	--	--	--	--	--	--	--	--	--	--
Yellow birch	4,432	--	--	215	--	--	2,041	--	324	958	535	359	--
Hard maple	12,029	3,496	312	787	--	--	204	633	1,305	3,208	554	1,530	--
Soft maple	2,360	398	333	437	93	--	--	--	242	--	164	693	--
Elm	14,432	3,570	--	--	298	251	336	809	3,584	3,008	--	2,576	--
Black ash	2,132	296	--	--	585	510	--	--	--	741	--	--	--
White & green ash	3,305	992	--	334	180	--	--	--	449	781	--	569	--
Cottonwood	--	--	--	--	--	--	--	--	--	--	--	--	--
Willow	--	--	--	--	--	--	--	--	--	--	--	--	--
Hackberry	--	--	--	--	--	--	--	--	--	--	--	--	--
Balsam poplar	--	--	--	--	--	--	--	--	--	--	--	--	--
Bigtooth aspen	17,195	--	452	7,302	2,544	--	1,488	1,624	248	--	2,717	272	548
Quaking aspen	35,129	6,224	1,683	6,954	893	2,065	2,667	--	1,911	235	3,958	3,630	4,909
Paper birch	10,668	2,498	--	4,971	187	620	539	--	--	775	230	497	351
River birch	--	--	--	--	--	--	--	--	--	--	--	--	--
Black cherry	326	--	--	--	--	--	--	--	326	--	--	--	--
Black walnut	--	--	--	--	--	--	--	--	--	--	--	--	--
Butternut	--	--	--	--	--	--	--	--	--	--	--	--	--
Other hardwoods	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	123,824	18,299	6,987	24,237	5,583	3,446	7,275	9,218	11,293	11,694	8,326	11,445	6,021
All species	167,673	25,057	7,644	28,745	8,820	7,878	12,830	12,109	13,378	11,694	19,272	12,813	7,433

(Table 50 continued on next page)

(Table 50 continued)

Species group	Total Central Unit	Central Unit												
		Adams	Chippewa	Clark	Eau Claire	Jackson	Juneau	Marathon	Marquette	Monroe	Portage	Waupaca	Waushara	Wood
Softwoods														
Jack pine	10,120	4,295	--	1,217	578	680	1,235	--	--	1,911	--	--	--	204
Red pine	1,243	--	389	--	--	--	--	315	--	--	352	--	--	187
White pine	7,535	--	--	--	--	--	--	471	2,566	--	1,965	1,462	511	560
White spruce	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Black spruce	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Balsam fir	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hemlock	1,032	--	--	--	--	--	--	1,032	--	--	--	--	--	--
Tamarack	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Eastern redcedar	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Northern white-cedar	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other softwoods	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	19,930	4,295	389	1,217	578	680	1,235	1,818	2,566	1,911	2,317	1,462	511	951
Hardwoods														
White oak	4,309	379	--	2,112	--	--	--	--	--	155	299	994	--	370
Select red oak	11,153	--	1,431	1,883	983	460	--	555	--	1,938	566	2,701	--	636
Other red oak	5,042	1,085	--	--	449	190	1,651	--	--	153	897	--	150	467
Select hickory	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other hickory	259	--	--	--	--	--	--	259	--	--	--	--	--	--
Basswood	5,269	--	2,195	583	--	--	--	1,427	--	--	--	--	--	1,064
Beech	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Yellow birch	3,398	--	--	--	--	--	--	2,650	--	--	--	248	--	500
Hard maple	6,404	--	261	702	--	--	--	3,682	--	--	--	1,485	--	274
Soft maple	3,974	--	744	--	--	--	--	945	--	168	443	1,242	--	432
Elm	17,444	--	503	3,651	--	--	--	9,971	--	--	--	2,138	--	1,181
Black ash	721	--	271	236	--	--	--	--	--	--	--	--	--	214
White & green ash	2,759	--	--	--	--	--	--	2,030	--	--	164	--	--	565
Cottonwood	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Willow	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hackberry	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Balsam poplar	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bigtooth aspen	3,807	251	704	315	374	--	--	639	--	591	--	331	--	602
Quaking aspen	14,349	495	4,453	2,698	404	--	--	4,699	--	--	680	--	--	920
Paper birch	748	--	--	467	--	--	--	--	--	--	--	--	--	281
River birch	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Black cherry	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Black walnut	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Butternut	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other hardwoods	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	79,636	2,210	10,562	12,647	2,210	650	1,651	26,857	--	3,005	3,049	9,139	150	7,506
All species	99,566	6,505	10,951	13,864	2,788	1,330	2,886	28,675	2,566	4,916	5,366	10,601	661	8,457

(Table 50 continued on next page)

(Table 50 continued)

Species group	Total Southwest Unit	Southwest Unit													
		Buffalo	Crawford	Dunn	Grant	Iowa	La Crosse	Lafayette	Pepin	Pierce	Richland	St.Croix	Sauk	Trempealeau	Vernon
Softwoods															
Jack pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Red pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
White pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
White spruce	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Black spruce	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Balsam fir	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hemlock	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tamarack	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Eastern redcedar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Northern white-cedar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other softwoods	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hardwoods															
White oak	11,594	169	--	371	1,758	749	279	--	221	300	237	--	3,971	2,334	1,205
Select red oak	49,893	7,411	1,504	2,888	2,189	424	5,458	--	1,694	1,701	--	522	22,307	1,291	2,504
Other red oak	11,804	2,500	1,267	2,825	--	--	835	--	--	--	--	592	1,549	1,553	683
Select hickory	440	204	--	--	--	--	--	--	--	--	--	--	236	--	--
Other hickory	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Basswood	6,179	--	--	1,139	--	--	--	--	--	1,228	494	157	2,807	--	354
Beech	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Yellow birch	175	--	--	--	--	--	--	--	--	--	--	--	175	--	--
Hard maple	6,558	--	--	--	1,136	--	--	--	--	305	--	4,608	509	--	--
Soft maple	5,039	1,994	--	628	--	--	--	--	--	--	--	--	1,516	901	--
Elm	7,024	139	--	474	1,249	997	508	--	--	591	1,234	1,114	234	484	--
Black ash	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
White & green ash	1,719	144	--	--	--	216	--	--	--	270	324	--	--	485	280
Cottonwood	310	--	--	--	--	--	--	--	--	--	310	--	--	--	--
Willow	442	--	--	--	--	--	--	--	--	--	--	--	--	442	--
Hackberry	233	--	--	--	--	--	--	--	--	--	233	--	--	--	--
Balsam poplar	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bigtooth aspen	6,235	--	--	453	--	--	--	--	--	--	1,027	--	4,468	--	287
Quaking aspen	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Paper birch	701	701	--	--	--	--	--	--	--	--	--	--	--	--	--
River birch	307	307	--	--	--	--	--	--	--	--	--	--	--	--	--
Black cherry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Black walnut	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Butternut	457	457	--	--	--	--	--	--	--	--	--	--	--	--	--
Other hardwoods	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	109,110	14,026	2,771	8,778	6,332	2,386	7,080	--	1,915	4,395	3,859	6,993	37,772	7,490	5,313
All species	109,110	14,026	2,771	8,778	6,332	2,386	7,080	--	1,915	4,395	3,859	6,993	37,772	7,490	5,313

(Table 50 continued on next page)

(Table 50 continued)

Species group	Total Southeast Unit	Southeast Unit												
		Brown	Calumet	Columbia	Dane	Dodge	Door	Fond du Lac	Green	Green Lake	Jefferson	Kenosha	Kewaunee	Manitowoc
Softwoods														
Jack pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Red pine	--	--	--	--	--	--	--	--	--	--	--	--	--	--
White pine	36	--	--	--	--	--	36	--	--	--	--	--	--	--
White spruce	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Black spruce	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Balsam fir	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hemlock	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tamarack	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Eastern redcedar	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Northern white-cedar	305	--	--	--	--	--	145	--	--	--	--	--	160	--
Other softwoods	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	341	--	--	--	--	--	181	--	--	--	--	--	160	--
Hardwoods														
White oak	4,700	--	--	1,425	2,224	--	--	--	159	--	191	--	--	--
Select red oak	9,305	--	--	3,152	2,051	--	--	--	1,104	619	--	188	--	--
Other red oak	3,018	--	--	2,058	756	--	--	--	--	--	--	--	--	--
Select hickory	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other hickory	241	--	--	--	--	241	--	--	--	--	--	--	--	--
Basswood	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Beech	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Yellow birch	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hard maple	3,086	--	--	--	--	--	--	--	--	--	--	--	--	--
Soft maple	9,104	4,294	--	--	--	--	--	209	--	--	--	--	--	514
Elm	7,163	2,329	--	--	--	--	371	--	1,953	--	--	--	1,133	--
Black ash	297	--	--	--	--	--	--	--	--	--	297	--	--	--
White & green ash	2,475	--	--	--	--	--	922	--	--	--	--	--	--	--
Cottonwood	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Willow	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Hackberry	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Balsam poplar	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bigtooth aspen	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Quaking aspen	128	--	--	128	--	--	--	--	--	--	--	--	--	--
Paper birch	--	--	--	--	--	--	--	--	--	--	--	--	--	--
River birch	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Black cherry	639	--	--	--	639	--	--	--	--	--	--	--	--	--
Black walnut	185	--	--	--	--	--	--	--	--	--	--	--	--	--
Butternut	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Other hardwoods	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Total	40,341	6,623	--	6,763	5,670	241	1,293	209	3,216	619	488	188	1,133	514
All species	40,682	6,623	--	6,763	5,670	241	1,474	209	3,216	619	488	188	1,293	514

(Table 50 continued on next page)

(Table 50 continued)

Species group	Southeast Unit									
	Milwaukee	Outagamie	Ozaukee	Racine	Rock	Sheboygen	Walworth	Washington	Waukesha	Winnebago
Softwoods										
Jack pine	--	--	--	--	--	--	--	--	--	--
Red pine	--	--	--	--	--	--	--	--	--	--
White pine	--	--	--	--	--	--	--	--	--	--
White spruce	--	--	--	--	--	--	--	--	--	--
Black spruce	--	--	--	--	--	--	--	--	--	--
Balsam fir	--	--	--	--	--	--	--	--	--	--
Hemlock	--	--	--	--	--	--	--	--	--	--
Tamarack	--	--	--	--	--	--	--	--	--	--
Eastern redcedar	--	--	--	--	--	--	--	--	--	--
Northern white-cedar	--	--	--	--	--	--	--	--	--	--
Other softwoods	--	--	--	--	--	--	--	--	--	--
Total	--	--	--	--	--	--	--	--	--	--
Hardwoods										
White oak	--	181	--	--	--	195	325	--	--	--
Select red oak	--	796	--	--	--	738	--	--	203	454
Other red oak	--	--	--	--	--	--	--	--	204	--
Select hickory	--	--	--	--	--	--	--	--	--	--
Other hickory	--	--	--	--	--	--	--	--	--	--
Basswood	--	--	--	--	--	--	--	--	--	--
Beech	--	--	--	--	--	--	--	--	--	--
Yellow birch	--	--	--	--	--	--	--	--	--	--
Hard maple	--	--	--	--	--	1,020	--	2,066	--	--
Soft maple	--	3,913	--	--	--	174	--	--	--	--
Elm	--	748	--	--	--	--	--	155	--	474
Black ash	--	--	--	--	--	--	--	--	--	--
White & green ash	--	445	--	--	--	1,108	--	--	--	--
Cottonwood	--	--	--	--	--	--	--	--	--	--
Willow	--	--	--	--	--	--	--	--	--	--
Hackberry	--	--	--	--	--	--	--	--	--	--
Balsam poplar	--	--	--	--	--	--	--	--	--	--
Bigtooth aspen	--	--	--	--	--	--	--	--	--	--
Quaking aspen	--	--	--	--	--	--	--	--	--	--
Paper birch	--	--	--	--	--	--	--	--	--	--
River birch	--	--	--	--	--	--	--	--	--	--
Black cherry	--	--	--	--	--	--	--	--	--	--
Black walnut	--	185	--	--	--	--	--	--	--	--
Butternut	--	--	--	--	--	--	--	--	--	--
Other hardwoods	--	--	--	--	--	--	--	--	--	--
Total	--	6,268	--	--	--	3,235	325	2,221	407	928
All species	--	6,268	--	--	--	3,235	325	2,221	407	928

Table 51.--Current annual timber removals of growing stock and sawtimber on timberland by species group, Wisconsin, 1967 and 1982

Species group	Growing stock		Sawtimber	
	1967	1982	1967	1982
	Thousand cubic feet		Thousand board feet[1/]	
Softwoods				
Jack pine	13,295	14,552	28,247	20,320
Red pine	1,770	16,502	6,196	35,981
White pine	4,162	7,967	22,414	36,240
White spruce	543	1,976	3,386	5,155
Black spruce	612	1,235	838	884
Balsam fir	3,963	9,351	14,227	17,602
Hemlock	4,237	4,839	21,414	12,433
Tamarack	329	545	985	654
Northern white-cedar	1,043	2,421	2,331	4,383
Other softwoods	2	--	1	--
Total	29,956	59,388	100,039	133,652
Hardwoods				
White oak	8,142	10,025	23,911	41,499
Select red oak	24,558	28,156	91,847	120,169
Other red oak	9,083	11,211	26,226	43,856
Hickory	2,013	644	3,188	2,294
Basswood	8,198	7,199	28,330	25,798
Beech	334	321	1,560	1,312
Yellow birch	3,037	3,027	11,962	8,206
Hard maple	17,551	21,064	63,978	75,889
Soft maple	9,732	10,322	24,623	28,684
Elm	13,300	15,600	46,906	52,498
Ash	7,116	6,675	17,038	16,991
Cottonwood	449	120	1,853	568
Balsam poplar	85	148	179	306
Bigtooth aspen	21,059	22,002	64,025	70,020
Quaking aspen	66,532	74,114	118,278	183,661
Paper birch	10,497	13,333	19,622	16,907
Black walnut	292	134	1,677	519
Other hardwoods[2/]	1,216	1,475	4,926	3,498
Total	203,194	225,570	550,129	692,675
All species	233,150	284,958	650,168	826,327

[1/] International 1/4-inch rule.

[2/] Includes willow, hackberry, river birch, black cherry and butternut.

Table 52.--Current annual timber removals of growing stock and sawtimber on timberland by item and species group, Wisconsin, 1982

Item	Growing stock						Sawtimber					
	All species	Pine	Other softwoods	Aspen	Oak	Other hardwoods	All species	Pine	Other softwoods	Aspen	Oak	Other hardwoods
	Thousand cubic feet						Thousand board feet[1/]					
Roundwood products												
Pulpwood[2/]	138,978	26,326	11,711	68,867	4,754	27,320	274,919	39,422	19,271	159,938	10,984	45,304
Saw logs	79,456	9,017	3,609	13,175	27,791	25,864	413,368	48,309	17,265	66,198	148,085	133,511
Fuelwood	20,387	128	43	1,569	8,278	10,369	58,801	369	99	4,892	23,777	29,664
Posts	3,412	1,471	1,373	94	229	245	3,714	1,105	1,408	185	494	522
Veneer logs	3,961	5	--	1,899	902	1,155	25,610	41	--	12,282	5,820	7,467
Poles	142	126	14	--	2	--	571	503	54	--	14	--
Other	811	1	--	483	107	220	4,264	4	--	2,323	803	1,134
Total	247,147	37,074	16,750	86,087	42,063	65,173	781,247	89,753	38,097	245,818	189,977	217,602
Logging residue	16,375	1,116	653	5,297	4,134	5,175	30,610	2,038	1,333	4,661	10,991	11,587
Other removals	21,436	831	2,964	4,732	3,195	9,714	14,470	750	1,681	3,202	4,556	4,281
All removals	284,958	39,021	20,367	96,116	49,392	80,062	826,327	92,541	41,111	253,681	205,524	233,470

[1/] International 1/4-inch rule.

[2/] Includes particleboard and waferboard bolts.

Table 53.--Net annual growth and current annual removals of growing stock and sawtimber on timberland by species group, Wisconsin, 1982

Species group	Growing stock		Sawtimber	
	Growth	Removals	Growth	Removals
	Thousand cubic feet		Thousand board feet[1/]	
Softwoods				
Jack pine	23,092	14,552	71,795	20,320
Red pine	43,977	16,502	122,739	35,981
White pine	16,876	7,967	83,335	36,240
White spruce	10,934	1,976	39,075	5,155
Black spruce	5,491	1,235	4,577	884
Balsam fir	22,338	9,351	69,757	17,602
Hemlock	2,840	4,839	12,886	12,433
Tamarack	2,041	545	7,231	654
Eastern redcedar	244	--	251	--
Northern white-cedar	14,647	2,421	46,882	4,383
Other softwoods	183	--	413	--
Total	142,663	59,388	458,941	133,652
Hardwoods				
White oak	11,453	10,025	57,123	41,499
Select red oak	34,507	28,156	153,714	120,169
Other red oak	15,934	11,211	71,490	43,856
Hickory	6,109	644	14,347	2,294
Basswood	25,979	7,199	88,496	25,798
Beech	653	321	1,679	1,312
Yellow birch	2,673	3,027	7,464	8,206
Hard maple	46,806	21,064	109,715	75,889
Soft maple	51,605	10,322	77,489	28,684
Elm	-359	15,600	4,764	52,498
Ash	26,214	6,675	72,103	16,991
Cottonwood	1,008	120	4,266	568
Balsam poplar	733	148	2,032	306
Bigtooth aspen	19,240	22,002	66,267	70,020
Quaking aspen	60,648	74,114	168,395	183,661
Paper birch	34,906	13,333	57,418	16,907
Black walnut	611	134	3,762	519
Other hardwoods[2/]	9,853	1,475	23,554	3,498
Total	348,573	225,570	984,078	692,675
All species	491,236	284,958	1,443,019	826,327

[1/] International 1/4-inch rule.

[2/] Includes willow, hackberry, river birch, black cherry and butternut.

Table 54.--Net annual growth and current annual removals of growing stock on timberland by ownership class and softwoods and hardwoods, Wisconsin, 1982

(In thousand cubic feet)

Ownership class	Net annual growth			Annual timber removals		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
National Forest	47,866	14,384	33,482	17,291	5,991	11,300
Miscellaneous federal	4,127	1,543	2,584	170	124	46
State	18,037	7,236	10,801	5,372	1,804	3,568
County and municipal	74,770	25,061	49,709	41,396	7,170	34,226
Indian	12,021	4,484	7,537	9,013	3,047	5,966
Forest industry	42,140	13,788	28,352	29,012	9,001	20,011
Farmer and other[1/]	292,275	76,167	216,108	182,704	32,251	150,453
All owners	491,236	142,663	348,573	284,958	59,388	225,570

[1/] Includes miscellaneous private-corporation and miscellaneous private-indivdual.

Table 55.--Net annual growth and current annual removals of sawtimber on timberland by ownership class and softwoods and hardwoods, Wisconsin, 1982

(In thousand board feet)[1/]

Ownership class	Net annual growth			Annual timber removals		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
National Forest	171,142	81,079	90,063	44,267	13,093	31,174
Miscellaneous federal	10,698	5,442	5,256	400	202	198
State	49,558	24,531	25,027	13,083	4,245	8,838
County and municipal	181,415	73,249	108,166	97,558	13,321	84,237
Indian	39,787	18,355	21,432	28,932	10,050	18,882
Forest industry	118,039	49,693	68,346	75,439	19,820	55,619
Farmer and other[2/]	872,380	206,592	665,788	566,648	72,921	493,727
All owners	1,443,019	458,941	984,078	826,327	133,652	692,675

[1/] International 1/4-inch rule.

[2/] Includes miscellaneous private-corporation and miscellaneous private-indivdual.

Table 56.--Annual mortality of growing stock on timberland by softwoods and hardwoods, Wisconsin, 1967 and 1982

(In thousand cubic feet)

Species	1967[1/]	1982
Softwoods	15,688	22,051
Hardwoods	80,519	114,717
Total	96,207	136,768

[1/] Figures have been adjusted from those published after the 1968 survey to conform to 1982 volumes because of changes in survey procedures and volume equations.

Table 57.--Annual mortality of growing stock and sawtimber on timberland by species group, Wisconsin, 1982

Species group	Growing stock	Sawtimber
	Thousand cubic feet	Thousand board feet[1/]
Softwoods		
Jack pine	4,206	6,535
Red pine	170	648
White pine	1,421	6,434
White spruce	719	1,708
Black spruce	862	590
Balsam fir	9,855	15,511
Hemlock	1,474	5,752
Tamarack	2,294	1,589
Eastern redcedar	--	1
Northern white-cedar	1,041	3,023
Other softwoods	9	4
Total	22,051	41,795
Hardwoods		
White oak	1,802	4,188
Select red oak	6,443	18,574
Other red oak	7,227	10,656
Select hickory	161	454
Other hickory	263	27
Basswood	3,248	6,208
Beech	548	2,083
Yellow birch	2,517	7,752
Hard maple	4,374	8,624
Soft maple	5,603	7,156
Elm	22,556	70,205
Black ash	2,185	2,207
White & green ash	640	1,456
Cottonwood	105	231
Willow	283	884
Hackberry	17	73
Balsam poplar	758	1,664
Bigtooth aspen	9,694	18,766
Quaking aspen	40,557	44,014
Paper birch	3,780	2,260
River birch	207	361
Black cherry	1,092	873
Black walnut	96	317
Butternut	471	814
Other hardwoods	90	141
Total	114,717	209,988
All species	136,768	251,783

[1/] International 1/4-inch rule.

Table 58.--Annual mortality of growing stock on timberland by species group and cause, Wisconsin, 1982

(In thousand cubic feet)

Species group	All causes	Cause						
		Insects	Disease	Fire	Animals	Weather	Suppression	Unknown and other
Softwoods								
Jack pine	4,206	54	537	265	10	319	61	2,960
Red pine	170	--	--	10	13	15	--	132
White pine	1,421	28	129	--	31	67	7	1,159
White spruce	719	20	18	--	2	101	131	447
Black spruce	862	10	100	--	12	248	2	490
Balsam fir	9,855	1,101	545	--	26	2,307	42	5,834
Hemlock	1,474	1	62	--	56	207	4	1,144
Tamarack	2,294	22	251	--	114	263	--	1,644
Eastern redcedar	--	--	--	--	--	--	--	--
Northern white-cedar	1,041	--	26	--	5	338	1	671
Other softwoods	9	--	--	--	1	--	--	8
Total	22,051	1,236	1,668	275	270	3,865	248	14,489
Hardwoods								
White oak	1,802	--	88	2	4	111	36	1,561
Select red oak	6,443	1	520	14	50	1,019	21	4,818
Other red oak	7,227	1	604	15	1	477	10	6,119
Select hickory	161	--	1	--	--	39	--	121
Other hickory	263	--	--	--	--	15	--	248
Basswood	3,248	20	195	--	16	182	88	2,747
Beech	548	--	21	--	--	--	--	527
Yellow birch	2,517	--	376	--	--	165	1	1,975
Hard maple	4,374	3	619	--	64	417	25	3,246
Soft maple	5,603	1	694	45	6	519	16	4,322
Elm	22,556	531	16,561	--	14	157	33	5,260
Black ash	2,185	--	57	--	2	163	1	1,962
White & green ash	640	--	40	2	--	45	25	528
Cottonwood	105	--	3	--	3	2	--	97
Willow	283	--	12	--	--	33	--	238
Hackberry	17	--	--	--	--	--	--	17
Balsam poplar	758	--	48	--	--	19	--	691
Bigtooth aspen	9,694	41	1,491	82	37	590	1	7,452
Quaking aspen	40,557	19	7,945	59	244	4,157	183	27,950
Paper birch	3,780	--	785	11	41	250	67	2,626
River birch	207	--	41	2	--	--	--	164
Black cherry	1,092	--	209	--	15	29	54	785
Black walnut	96	--	4	--	1	--	--	91
Butternut	471	--	99	--	--	14	--	358
Other hardwoods	90	--	10	--	--	1	2	77
Total	114,717	617	30,423	232	498	8,404	563	73,980
All species	136,768	1,853	32,091	507	768	12,269	811	88,469

Table 59.--Annual mortality of sawtimber on timberland by species group and cause, Wisconsin, 1982

(In thousand board feet)[1/]

Species group	All causes	Cause						
		Insects	Disease	Fire	Animals	Weather	Suppression	Unknown and other
Softwoods								
Jack pine	6,535	128	368	254	30	1,196	6	4,553
Red pine	648	--	--	--	--	86	--	562
White pine	6,434	75	702	--	176	415	2	5,064
White spruce	1,708	9	62	--	4	313	--	1,320
Black spruce	590	55	18	--	--	355	--	162
Balsam fir	15,511	622	1,751	--	17	4,065	3	9,053
Hemlock	5,752	8	249	--	197	878	14	4,406
Tamarack	1,589	--	97	--	--	346	--	1,146
Eastern redcedar	1	--	--	--	--	--	--	1
Northern white-cedar	3,023	5	204	--	67	1,185	--	1,562
Other softwoods	4	--	--	--	--	--	--	4
Total	41,795	902	3,451	254	491	8,839	25	27,833
Hardwoods								
White oak	4,188	--	298	--	18	353	8	3,511
Select red oak	18,574	--	1,586	--	247	2,610	4	14,127
Other red oak	10,656	--	707	65	--	1,421	--	8,463
Select hickory	454	--	11	--	--	5	--	438
Other hickory	27	6	7	--	--	--	--	14
Basswood	6,208	24	648	--	51	521	--	4,964
Beech	2,083	--	47	--	--	--	--	2,036
Yellow birch	7,752	--	1,137	--	--	701	--	5,914
Hard maple	8,624	--	1,290	--	36	1,258	76	5,964
Soft maple	7,156	--	1,086	--	10	516	--	5,544
Elm	70,205	1,221	51,608	--	53	571	--	16,752
Black ash	2,207	--	26	--	--	188	--	1,993
White & green ash	1,456	--	153	--	--	136	--	1,167
Cottonwood	231	--	11	--	15	6	--	199
Willow	884	--	14	--	--	135	--	735
Hackberry	73	--	--	--	--	--	--	73
Balsam poplar	1,664	--	78	--	--	85	--	1,501
Bigtooth aspen	18,766	202	2,922	--	78	2,472	--	13,092
Quaking aspen	44,014	--	10,322	--	240	6,270	--	27,182
Paper birch	2,260	--	320	--	3	311	--	1,626
River birch	361	--	--	3	--	--	--	358
Black cherry	873	--	153	--	--	61	--	659
Black walnut	317	--	20	--	8	--	--	289
Butternut	814	--	127	--	--	--	--	687
Other hardwoods	141	--	17	--	--	--	--	124
Total	209,988	1,453	72,588	68	759	17,620	88	117,412
All species	251,783	2,355	76,039	322	1,250	26,459	113	145,245

[1/] International 1/4-inch rule.

Table 60.--Annual mortality of growing stock and sawtimber on timberland by ownership class and softwoods and hardwoods, Wisconsin, 1982

Ownership class	Growing stock			Sawtimber		
	All species	Softwoods	Hardwoods	All species	Softwoods	Hardwoods
	Thousand cubic feet			Thousand board feet[1/]		
National Forest	14,286	6,850	7,436	23,492	9,819	13,673
Miscellaneous federal	1,533	169	1,364	3,313	476	2,837
State	4,959	817	4,142	9,195	1,623	7,572
County and municipal	20,452	3,086	17,366	24,975	6,077	18,898
Indian	4,742	764	3,978	12,147	3,134	9,013
Forest industry	9,761	2,229	7,532	16,715	4,602	12,113
Farmer	32,840	2,186	30,654	80,885	3,878	77,007
Misc. private-corp.	5,912	495	5,417	10,078	906	9,172
Misc. private-indiv.	42,283	5,455	36,828	70,983	11,280	59,703
All owners	136,768	22,051	114,717	251,783	41,795	209,988

[1/] International 1/4-inch rule.

Table 61.--Output of timber products by product, softwoods and hardwoods, and source of material, Wisconsin, 1981

Product	Standard units	Total		Roundwood products				Plant byproducts	
				Growing stock		Non-growing stock			
		No. of units	Thousand cubic feet	No. of units	Thousand cubic feet	No. of units	Thousand cubic feet	No. of units	Thousand cubic feet
Pulpwood[1]									
Softwoods	Standard[2]	632,007	49,845	482,292	38,037	103,076	8,124	46,639	3,684
Hardwoods	cords	1,756,746	138,761	1,277,953	100,941	234,817	18,546	243,976	19,274
Total		2,388,753	188,606	1,760,245	138,978	337,893	26,670	290,615	22,958
Saw logs									
Softwoods	Thousand[3]	75,683	13,450	70,952	12,626	4,731	824	--	--
Hardwoods	board feet	415,092	72,544	382,381	66,830	32,711	5,714	--	--
Total		490,775	85,994	453,333	79,456	37,442	6,538	--	--
Veneer logs									
Softwoods	Thousand[3]	44	5	44	5	--	--	--	--
Hardwoods	board feet	27,206	4,384	24,548	3,956	2,658	428	--	--
Total		27,250	4,389	24,592	3,961	2,658	428	--	--
Fuelwood									
Softwoods	Standard[2]	87,988	6,141	2,460	171	46,970	3,272	38,558	2,698
Hardwoods	cords	2,077,523	145,282	289,137	20,216	1,577,412	110,298	210,974	14,768
Total		2,165,511	151,423	291,597	20,387	1,624,382	113,570	249,532	17,466
Posts									
Softwoods	Thousand	3,350	3,441	2,769	2,844	581	597	--	--
Hardwoods	pieces	921	920	569	568	352	352	--	--
Total		4,271	4,361	3,338	3,412	933	949	--	--
Poles									
Softwoods	Pieces	16,417	140	16,417	140	--	--	--	--
Hardwoods		375	2	375	2	--	--	--	--
Total		16,792	142	16,792	142	--	--	--	--
Other[4]									
Softwoods	Thousand	1,499	1,499	1	1	--	--	1,498	1,498
Hardwoods	cubic feet	8,167	8,167	810	810	34	34	7,323	7,323
Total		9,666	9,666	811	811	34	34	8,821	8,821
All products									
Softwoods	Thousand	--	74,521	--	53,824	--	12,817	--	7,880
Hardwoods	cubic feet	--	370,060	--	193,323	--	135,372	--	41,365
Total		--	444,581	--	247,147	--	148,189	--	49,245

[1] Includes roundwood and plant byproducts used for particleboard and waferboard.

[2] 128 cubic feet; includes wood, bark, and air space.

[3] International 1/4-inch rule.

[4] Other (industrial production) includes cabin logs, charcoal wood, shingle bolts, pilings, etc.

Table 62.--Output of roundwood products by product, softwoods and hardwoods, and source of material, Wisconsin, 1981

(In thousand cubic feet)

Product and species group	All sources	Growing-stock trees			Rough and rotten trees	Salvable dead trees	Other sources
		Total	Sawtimber	Poletimber			
Industrial products							
Saw logs							
Softwoods	13,450	12,626	11,812	814	37	173	614
Hardwoods	72,544	66,830	60,561	6,269	1,194	3,362	1,158
Subtotal	85,994	79,456	72,373	7,083	1,231	3,535	1,772
Veneer logs and bolts							
Softwoods	5	5	5	--	--	--	--
Hardwoods	4,384	3,956	3,956	--	424	--	4
Subtotal	4,389	3,961	3,961	--	424	--	4
Pulpwood[1/]							
Softwoods	46,161	38,037	17,170	20,867	825	2,867	4,432
Hardwoods	119,487	100,941	57,299	43,642	7,925	4,557	6,064
Subtotal	165,648	138,978	74,469	64,509	8,750	7,424	10,496
Cooperage							
Softwoods	--	--	--	--	--	--	--
Hardwoods	120	107	107	--	8	--	5
Subtotal	120	107	107	--	8	--	5
Piling							
Softwoods	1	1	1	--	--	--	--
Hardwoods	--	--	--	--	--	--	--
Subtotal	1	1	1	--	--	--	--
Poles							
Softwoods	140	140	117	23	--	--	--
Hardwoods	2	2	2	--	--	--	--
Subtotal	142	142	119	23	--	--	--
Posts (Round and split)							
Softwoods	3,441	2,844	759	2,085	73	--	524
Hardwoods	920	568	238	330	176	--	176
Subtotal	4,361	3,412	997	2,415	249	--	700
Other							
Softwoods	--	--	--	--	--	--	--
Hardwoods	724	703	514	189	11	4	6
Subtotal	724	703	514	189	11	4	6
All industrial products							
Softwoods	63,198	53,653	29,864	23,789	935	3,040	5,570
Hardwoods	198,181	173,107	122,677	50,430	9,738	7,923	7,413
Total	261,379	226,760	152,541	74,219	10,673	10,963	12,983
Fuelwood							
Softwoods	3,443	171	105	66	33	1,614	1,625
Hardwoods	130,514	20,216	12,395	7,821	3,989	60,646	45,663
Total	133,957	20,387	12,500	7,887	4,022	62,260	47,288
All products							
Softwoods	66,641	53,824	29,969	23,855	968	4,654	7,195
Hardwoods	328,695	193,323	135,072	58,251	13,727	68,569	53,076
Total	395,336	247,147	165,041	82,106	14,695	73,223	60,271

[1/] Includes particleboard and waferboard bolts.

Table 63.--Timber products from roundwood by species group and product, Wisconsin, 1981

Species group	All products	Pulpwood[1]		Saw logs		Veneer logs	
	Thousand cubic feet	Standard cords[2]	Thousand cubic feet	Thousand board feet[3]	Thousand cubic feet	Thousand board feet[3]	Thousand cubic feet
Softwoods							
Jack pine	19,023	217,116	17,125	5,043	1,056	--	--
Red pine	19,493	180,878	14,287	14,669	2,482	--	--
White pine	8,821	21,346	1,676	36,628	6,220	44	5
White spruce	1,722	15,491	1,221	2,200	460	--	--
Black spruce	1,146	11,847	929	947	198	--	--
Balsam fir	9,613	104,778	8,249	5,150	1,079	--	--
Hemlock	4,249	28,932	2,285	8,913	1,514	--	--
Tamarack	453	4,980	389	88	17	--	--
Northern white-cedar	2,121	--	--	2,045	424	--	--
Other softwoods	--	--	--	--	--	--	--
Total	66,641	585,368	46,161	75,683	13,450	44	5
Hardwoods							
White oak	20,189	16,988	1,338	34,490	6,028	244	36
Select red oak	46,339	45,378	3,578	93,582	16,393	4,547	739
Other red oak	19,502	15,445	1,219	38,983	6,826	1,392	226
Hickory	1,682	516	39	2,105	362	--	--
Basswood	8,228	15,764	1,241	28,039	4,993	1,042	166
Beech	721	46	2	2,702	479	4	4[4]
Yellow birch	4,847	28,182	2,221	4,658	825	1,291	205
Hard maple	30,038	118,509	9,371	46,753	7,795	2,321	375
Soft maple	14,460	63,461	5,016	18,607	3,304	511	80
Elm	47,026	70,738	5,586	42,840	7,637	1,988	313
Ash	9,938	37,577	2,969	11,860	2,108	290	42
Cottonwood	450	26	2	1,378	235	83	14
Balsam poplar	240	624	49	954	168	--	--
Bigtooth aspen	22,968	210,522	16,627	18,119	3,159	2,896	471
Quaking aspen	76,583	754,627	59,611	58,288	10,172	10,075	1,638
Paper birch	18,921	130,661	10,333	9,186	1,627	441	67
Black walnut	245	--	--	753	123	34	5
Other hardwoods[5]	6,318	3,706	285	1,795	310	47	7
Total	328,695	1,512,770	119,487	415,092	72,544	27,206	4,384
All species	395,336	2,098,138	165,648	490,775	85,994	27,250	4,389

(Table 63 continued on next page)

[1] Includes particleboard and waferboard bolts.

[2] 128 cubic feet; includes wood, bark, and air space.

[3] International 1/4-inch rule.

[4] Less than 500 cubic feet.

[5] Includes willow, hackberry, river birch, black cherry and butternut.

(Table 63 continued)

Species group	Fuelwood		Posts		Poles		Other products
	Standard cords [2]	Thousand cubic feet	Thousand pieces	Thousand cubic feet	Pieces	Thousand cubic feet	Thousand cubic feet
Softwoods							
Jack pine	12,094	842	--	--	--	--	--
Red pine	9,568	666	1,880	1,931	14,817	126	1
White pine	13,176	920	--	--	--	--	--
White spruce	591	41	--	--	--	--	--
Black spruce	276	19	--	--	--	--	--
Balsam fir	4,111	285	--	--	--	--	--
Hemlock	6,426	450	--	--	--	--	--
Tamarack	687	47	--	--	--	--	--
Northern white-cedar	2,501	173	1,470	1,510	1,600	14	--
Other softwoods	--	--	--	--	--	--	--
Total	49,430	3,443	3,350	3,441	16,417	140	1
Hardwoods							
White oak	176,193	12,321	348	345	150	1	120
Select red oak	366,052	25,613	14	15	141	1	--
Other red oak	160,431	11,223	8	8	84	[4]	--
Hickory	18,384	1,281	--	--	--	--	--
Basswood	26,191	1,828	--	--	--	--	--
Beech	3,423	240	--	--	--	--	--
Yellow birch	22,952	1,596	--	--	--	--	--
Hard maple	178,620	12,487	--	--	--	--	10
Soft maple	84,933	5,928	--	--	--	--	132
Elm	478,585	33,490	--	--	--	--	--
Ash	69,031	4,819	--	--	--	--	--
Cottonwood	2,901	199	--	--	--	--	--
Balsam poplar	316	23	--	--	--	--	--
Bigtooth aspen	33,655	2,354	88	89	--	--	268
Quaking aspen	69,836	4,884	63	63	--	--	215
Paper birch	98,095	6,859	--	--	--	--	35
Black walnut	1,680	117	--	--	--	--	--
Other hardwoods [5]	75,271	5,252	400	400	--	--	64
Total	1,866,549	130,514	921	920	375	2	844
All species	1,915,979	133,957	4,271	4,361	16,792	142	845

[2] 128 cubic feet; includes wood, bark, and air space.

[4] Less than 500 cubic feet.

[5] Includes willow, hackberry, river birch, black cherry and butternut.

Table 64.--Volume of primary plant residue by use and type of residue, Wisconsin, 1981

(In thousand cubic feet)

Use	Wood residue							
	Total		Coarse [1]		Fine [2]		Bark [3]	
	Softwoods	Hardwoods	Softwoods	Hardwoods	Softwoods	Hardwoods	Softwoods	Hardwoods
Fiber products [4]	2,394.6	14,094.8	2,199.5	12,223.9	195.1	1,870.9	3.6	189.0
Charcoal	2.9	447.5	1.9	389.1	1.0	58.4	1.3	241.3
Industrial fuel	1,436.3	9,215.3	746.9	3,747.4	689.4	5,467.9	1,636.5	9,749.8
Domestic fuel	1,262.8	5,552.9	1,176.4	5,151.1	86.4	401.8	519.6	1,967.7
Miscellaneous [5]	1,496.0	6,874.7	88.7	781.5	1,407.3	6,093.2	249.2	2,567.0
Not used [6]	189.5	615.1	66.9	297.4	122.6	317.7	193.9	459.5
Total	6,782.1	36,800.3	4,280.3	22,590.4	2,501.8	14,209.9	2,604.1	15,174.3

[1] Suitable for chipping such as slabs, edgings, veneer cores, etc.

[2] Not suitable for chipping such as sawdust, veneer clippings, etc.

[3] Does not include bark disposal at pulpmills.

[4] For manufacture of pulp, hardboard, or roofing felt.

[5] Livestock bedding, mulch, small dimension, and specialty items.

[6] Includes residue burned as waste.

Table 65.--All live shrub[1/] biomass yields on timberland by shrub species group and forest type, Wisconsin, 1983

(In pounds per acre)

Shrub species group	Forest type														
	Jack pine	Red pine	White pine	Balsam fir	White spruce	Black spruce	Northern white-cedar	Tamarack	Oak-hickory	Elm-ash-soft maple	Maple-birch	Aspen	Paper birch	Exotic	Non-stocked
Tall shrubs															
Jack pine	340	18	--	--	--	1	--	44	42	--	3	5	--	--	--
Red pine	29	178	--	--	--	6	--	--	2	--	--	1	1	--	--
White pine	19	16	287	--	--	60	--	1	10	3	20	22	9	--	--
White spruce	--	--	--	3	290	--	8	--	1	9	6	8	27	--	--
Black spruce	4	17	1	34	--	1,396	10	956	--	--	17	5	12	--	--
Balsam fir	25	94	151	959	26	251	644	425	6	119	134	116	213	--	--
Hemlock	--	--	23	--	3	6	19	1	--	2	13	2	46	--	--
Tamarack	--	--	--	15	--	135	7	953	--	--	--	--	--	--	--
Eastern redcedar	--	--	9	--	--	--	--	--	4	--	--	1	19	--	--
Northern white-cedar	--	--	--	13	--	37	339	19	--	24	1	1	6	--	--
Other softwoods	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Select white oak	218	117	43	--	--	--	--	--	184	4	4	17	15	--	--
Select red oak	49	19	44	--	1	--	--	--	110	81	23	26	10	--	--
Other red oak	228	114	82	--	--	15	--	--	194	2	4	31	2	--	--
Select hickory	--	--	--	--	--	--	--	--	22	23	2	--	29	--	--
Other hickory	--	--	--	--	--	--	--	--	23	--	13	1	12	--	--
Basswood	--	--	--	--	36	--	--	--	24	10	55	5	12	--	18
Beech	--	--	3	--	--	--	--	--	--	--	26	--	1	--	--
Yellow birch	--	5	--	1	--	--	15	--	--	7	38	18	--	--	--
Hard maple	--	6	30	6	54	4	4	--	81	22	379	46	74	--	--
Soft maple	40	74	362	98	87	41	98	53	146	191	155	243	173	--	2
Elm	1	--	--	5	69	--	10	2	54	43	113	22	10	--	--
Black ash	--	5	5	151	--	--	173	27	6	498	36	27	41	--	--
White & green ash	--	--	5	--	17	--	--	--	12	68	77	17	24	--	--
Cottonwood	--	--	--	--	--	--	--	--	--	--	--	2	--	--	--
Willow	1	--	--	2	--	--	--	21	--	--	--	4	--	--	--
Hackberry	--	--	--	--	--	--	--	--	3	2	--	--	--	--	--
Balsam poplar	--	--	--	1	--	--	--	2	--	4	3	8	--	--	--
Bigtooth aspen	7	1	45	1	--	--	--	--	19	--	5	112	10	--	--
Quaking aspen	78	95	94	18	631	15	8	--	22	33	50	694	61	--	1
Paper birch	5	1	2	31	--	43	16	33	15	10	15	56	112	--	--
River birch	--	--	--	--	--	--	--	--	--	2	--	--	--	--	--
Black cherry	42	69	27	59	25	1	--	3	78	93	55	90	36	--	217
Black walnut	--	--	--	--	--	--	--	--	--	15	4	--	--	--	--
Butternut	--	--	--	--	--	--	--	--	1	--	--	1	2	--	--
Other hardwoods	19	17	--	3	--	--	6	--	87	51	23	66	69	--	8
Striped maple	--	--	--	--	--	--	--	--	--	--	--	--	17	--	--
Mountain maple	--	--	32	133	--	--	92	--	1	106	32	34	62	--	--
American hornbeam	--	4	--	--	--	--	--	--	37	19	126	32	1	--	--
Apple	--	--	--	--	--	--	--	--	3	--	--	--	--	--	--
Eastern hophornbeam	--	--	21	--	--	--	--	--	75	41	168	21	12	--	--
Pincherry	9	1	2	1	--	4	--	15	15	5	7	16	5	--	--
Chokecherry	43	51	25	9	1	5	--	--	36	28	30	56	39	--	6
Wild plum	--	--	--	--	--	--	--	--	3	16	--	--	--	--	--
Mountain-ash	--	--	1	--	--	--	--	--	--	--	--	--	--	--	--
Green alder	19	--	--	83	--	--	--	--	--	--	1	--	--	--	--
Speckled alder	39	339	205	4,719	--	2,314	3,135	2,516	155	3,702	174	2,355	1,536	--	2,619

(Table 65 continued on next page)

[1/] Trees under 1.0-inch d.b.h. are also included.

(Table 65 continued)

Shrub species group	Forest type														
	Jack pine	Red pine	White pine	Balsam fir	White spruce	Black spruce	Northern white-cedar	Tamarack	Oak-hickory	Elm-ash-soft maple	Maple-birch	Aspen	Paper birch	Exotic	Non-stocked
Dogwood	17	8	25	74	6	1	242	95	191	342	121	206	134	--	298
Black alder	106	--	2	5	--	18	37	1,381	519	567	34	101	421	--	9
Witch hazel	--	17	560	18	--	--	--	--	44	--	17	102	1	--	--
Common ninebark	--	--	--	--	--	--	--	--	--	--	--	1	--	--	--
Juneberry	61	106	268	25	--	95	9	162	152	35	25	190	27	--	--
Hazel	550	629	952	418	29	59	64	32	586	386	339	1,019	602	--	104
Prickly ash	1	1	1	109	--	--	62	1	252	193	256	31	16	--	327
Buckthorn	--	--	--	--	--	--	--	--	--	50	8	--	5	--	--
Leatherwood	--	--	14	1	--	--	--	--	1	--	13	4	3	--	--
Viburnum	--	--	--	2	--	2	--	--	3	23	8	7	2	--	15
Elder	--	--	--	--	--	--	--	--	16	17	20	--	--	--	--
Sumac	38	2	--	--	--	--	--	1	35	5	38	16	7	--	--
Buffaloberry	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
New Jersey tea	--	3	--	--	--	--	--	--	--	--	--	--	--	--	--
Russian olive	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Shrubby willows	123	79	--	193	393	119	464	54	66	432	61	376	146	--	217
Miscellaneous tall shrubs	27	126	1	13	5	370	599	588	17	393	41	62	20	--	94
Total tall shrubs	2,138	2,212	3,322	7,203	1,673	4,998	6,061	7,385	3,353	7,676	2,793	6,276	4,082	--	3,935
Low shrubs															
Yew	--	--	--	--	--	--	2	--	--	--	--	--	--	--	--
Virginia creeper	1	--	--	--	35	--	--	1	12	18	7	3	2	--	--
Labrador tea	7	--	1	25	--	384	50	142	--	4	2	1	12	--	--
Leatherleaf	12	6	1	1	--	153	9	161	--	--	1	1	2	--	--
Bog laurel	--	--	--	--	--	59	8	37	--	--	--	1	--	--	--
Sweetfern	66	24	9	--	--	1	--	--	23	--	--	15	--	--	7
Gooseberry-current	6	3	1	7	3	3	8	4	23	28	28	15	15	--	12
Raspberry-blackberry	152	105	85	148	141	37	86	33	127	178	134	203	188	--	276
Rose	19	8	7	1	5	--	--	--	17	1	1	6	5	--	1
Bilberry-blueberry	406	114	259	73	--	348	21	245	190	4	34	135	60	--	63
Bush honeysuckle	5	7	15	11	6	5	2	8	5	3	9	22	22	--	--
Honeysuckle	4	3	6	19	--	2	5	2	8	3	6	12	15	--	--
Poison ivy	7	1	7	--	--	--	--	--	12	3	3	2	3	--	--
Greenbriar	--	--	2	--	--	--	--	--	--	--	--	--	--	--	--
Bog rosemary	1	--	--	--	--	18	1	8	--	--	--	--	--	--	--
Grape	--	--	--	--	--	--	--	--	8	3	1	--	1	--	--
Strawberry	17	20	17	31	73	5	11	9	11	24	18	48	35	--	28
Miscellaneous low shrubs	83	35	38	13	--	31	28	50	56	10	20	52	25	--	41
Total low shrubs	786	326	448	329	263	1,046	231	700	492	279	264	516	385	--	428
All shrubs	2,924	2,538	3,770	7,532	1,936	6,044	6,292	8,085	3,845	7,955	3,057	6,792	4,467	--	4,363
Number of plots[2/]	176	134	55	100	13	78	75	56	528	211	752	838	129	--	17

[2/] Number of plots by forest type from which average yields were derived.

Table 66.--All live above-ground tree biomass yields on timberland by species group and forest type, Wisconsin, 1983

(In pounds per acre)

Species group	Forest type							
	Jack pine	Red pine	White pine	Balsam fir	White spruce	Black spruce	Northern white-cedar	Tamarack
Softwoods								
Jack pine	62,513	4,221	4,262	96	--	127	77	282
Red pine	3,492	90,946	12,110	816	446	866	28	140
White pine	1,151	6,885	71,758	2,284	3,475	1,996	1,707	2,280
White spruce	--	922	1,783	4,917	112,616	162	1,421	370
Black spruce	105	473	1,532	3,729	540	43,519	4,484	7,574
Balsam fir	55	1,110	4,298	51,547	6,801	7,061	17,072	3,890
Hemlock	--	266	1,105	1,611	510	926	3,363	64
Tamarack	4	--	470	1,074	--	8,079	4,011	38,421
Eastern redcedar	27	75	--	--	--	--	--	--
Northern white-cedar	--	73	584	9,530	2,361	1,926	77,188	960
Other softwoods	--	697	191	--	--	--	--	--
Total	67,347	105,668	98,093	75,604	126,749	64,662	109,351	53,981
Hardwoods								
White oak	504	320	2,649	21	--	--	50	--
Select red oak	1,511	2,208	2,139	222	--	447	134	58
Other red oak	7,104	3,240	7,286	28	--	31	79	--
Select hickory	--	--	165	--	--	--	56	--
Other hickory	--	--	17	--	--	--	102	--
Basswood	--	47	380	52	368	--	323	--
Beech	--	86	--	--	--	--	--	--
Yellow birch	--	36	325	2,778	339	547	5,412	164
Hard maple	--	1,229	1,270	1,258	1,360	476	355	124
Soft maple	344	2,596	6,808	6,586	1,876	1,677	3,494	2,365
Elm	97	450	335	730	225	--	842	625
Black ash	--	2	572	4,235	238	46	8,371	564
White & green ash	--	256	190	31	1,242	--	142	--
Cottonwood	50	--	1,849	--	--	--	--	--
Willow	--	--	--	30	--	--	131	--
Hackberry	--	--	--	--	--	--	--	--
Balsam poplar	--	--	--	334	1,295	68	251	--
Bigtooth aspen	813	880	2,036	427	249	414	282	1,322
Quaking aspen	4,082	6,404	14,555	9,590	7,673	5,377	3,582	2,308
Paper birch	596	1,912	5,670	6,563	1,061	2,145	7,206	4,200
River birch	--	--	--	--	--	--	--	--
Black cherry	19	184	1,060	1,306	1,005	526	46	104
Black walnut	--	--	32	--	--	--	--	--
Butternut	--	--	--	--	--	--	--	--
Other hardwoods	52	624	--	--	--	--	7	--
Noncommercial species	20	67	419	298	--	--	48	--
Total	15,192	20,541	47,757	34,489	16,931	11,754	30,913	11,834
All species	82,539	126,209	145,850	110,093	143,680	76,416	140,264	65,815

(Table 66 continued on next page)

(Table 66 continued)

Species group	Forest type						
	Oak-hickory	Elm-ash-soft maple	Maple-birch	Aspen	Paper birch	Exotic	Non-stocked
Softwoods							
Jack pine	2,396	79	156	1,145	389	--	1,179
Red pine	680	33	283	1,098	1,541	14,489	--
White pine	1,292	1,324	2,382	1,186	1,864	--	443
White spruce	12	449	422	912	1,391	3,307	83
Black spruce	--	288	110	356	392	--	--
Balsam fir	94	5,086	2,707	3,506	6,274	--	50
Hemlock	41	1,604	5,662	192	538	--	269
Tamarack	15	807	103	223	600	--	578
Eastern redcedar	132	163	44	4	16	--	--
Northern white-cedar	5	3,760	1,082	476	1,124	--	--
Other softwoods	19	--	1	--	--	63,057	--
Total	4,686	13,593	12,952	9,098	14,129	80,853	2,602
Hardwoods							
White oak	26,290	2,038	2,567	1,615	2,521	--	4,345
Select red oak	41,881	1,822	8,793	5,314	10,752	--	2,084
Other red oak	31,728	1,085	1,056	2,387	985	--	10,767
Select hickory	4,560	26	604	45	943	--	408
Other hickory	1,940	94	1,284	108	--	--	138
Basswood	2,684	2,159	14,825	945	1,027	--	1,420
Beech	16	64	976	27	--	--	--
Yellow birch	86	3,233	6,678	464	954	--	260
Hard maple	3,291	2,509	49,676	3,118	4,158	--	2,109
Soft maple	6,063	30,873	19,312	10,715	13,290	--	720
Elm	2,529	10,098	8,136	1,088	1,463	--	2,019
Black ash	362	25,181	2,596	1,061	1,502	--	766
White & green ash	1,108	6,719	5,009	471	837	--	137
Cottonwood	258	845	107	112	29	--	--
Willow	35	1,831	80	91	48	--	1,113
Hackberry	46	60	26	--	--	--	--
Balsam poplar	36	574	124	711	266	--	--
Bigtooth aspen	5,067	351	2,206	11,572	4,324	--	92
Quaking aspen	3,588	5,794	7,210	44,296	13,846	--	3,876
Paper birch	5,054	4,038	5,893	10,315	68,599	--	872
River birch	66	889	--	--	--	--	--
Black cherry	3,091	629	2,484	1,354	810	--	1,124
Black walnut	719	--	135	--	--	--	402
Butternut	777	80	638	55	38	--	484
Other hardwoods	605	1,883	441	63	123	--	290
Noncommercial species	2,140	953	3,149	920	1,278	--	471
Total	144,020	103,828	144,005	96,847	127,793	--	33,897
All species	148,706	117,421	156,957	105,945	141,922	80,853	36,499

Table 67.--All live above-ground tree biomass on timberland by species group and forest type, Wisconsin, 1983

(In green tons)

Species group	All types	Forest type						
		Jack pine	Red pine	White pine	Balsam fir	White spruce	Black spruce	Northern white-cedar
Softwoods								
Jack pine	24,525,727	17,081,528	1,009,177	480,809	20,076	--	17,369	14,282
Red pine	28,248,452	954,220	21,744,861	1,366,035	171,101	13,692	118,253	5,179
White pine	21,479,769	314,628	1,646,192	8,094,183	479,057	106,689	272,492	316,352
White spruce	8,319,790	--	220,548	201,078	1,031,139	3,457,297	22,129	263,410
Black spruce	9,832,790	28,746	113,162	172,863	781,992	16,581	5,940,193	831,060
Balsam fir	32,779,037	14,922	265,425	484,784	10,809,130	208,799	963,808	3,164,386
Hemlock	14,172,228	--	63,612	124,661	337,920	15,647	126,461	623,410
Tamarack	7,734,864	1,183	--	53,040	225,136	--	1,102,768	743,380
Eastern redcedar	413,908	7,381	18,049	--	--	--	--	--
Northern white-cedar	22,470,067	--	17,554	65,855	1,998,519	72,476	262,856	14,306,733
Other softwoods	287,296	--	166,722	21,574	--	--	--	--
Total	170,263,928	18,402,608	25,265,302	11,064,882	15,854,070	3,891,181	8,826,329	20,268,192
Hardwoods								
White oak	48,290,056	137,848	76,618	298,793	4,420	--	--	9,304
Select red oak	92,169,813	412,809	527,941	241,298	46,608	--	61,052	24,808
Other red oak	56,767,968	1,941,143	774,606	821,835	5,851	--	4,215	14,735
Select hickory	8,179,291	--	--	18,593	--	--	--	10,422
Other hickory	5,604,813	--	--	1,877	--	--	--	18,832
Basswood	36,922,457	--	11,309	42,902	10,812	11,309	--	59,897
Beech	2,078,151	--	20,611	--	--	--	--	--
Yellow birch	18,290,773	--	8,544	36,677	582,444	10,413	74,711	1,002,988
Hard maple	113,008,854	--	293,768	143,267	263,774	41,754	64,940	65,879
Soft maple	92,266,872	93,972	620,626	767,923	1,381,070	57,592	228,882	647,618
Elm	29,102,367	26,436	107,664	37,767	152,994	6,913	--	156,003
Black ash	26,180,007	--	579	64,470	888,130	7,316	6,333	1,551,426
White & green ash	16,961,161	--	61,183	21,439	6,445	38,135	--	26,333
Cottonwood	1,521,887	13,787	--	208,567	--	--	--	--
Willow	1,628,441	--	--	--	6,290	--	--	24,356
Hackberry	153,980	--	--	--	--	--	--	--
Balsam poplar	2,064,843	--	--	--	70,123	39,743	9,339	46,450
Bigtooth aspen	33,149,483	222,163	210,349	229,710	89,503	7,641	56,459	52,237
Quaking aspen	108,311,626	1,115,337	1,531,110	1,641,773	2,011,159	235,542	733,981	663,938
Paper birch	65,168,212	162,901	457,107	639,610	1,376,493	32,579	292,793	1,335,554
River birch	646,373	--	--	--	--	--	--	--
Black cherry	12,895,047	5,105	44,046	119,560	273,822	30,846	71,817	8,613
Black walnut	1,333,375	--	--	3,619	--	--	--	--
Butternut	2,576,717	--	--	--	--	--	--	--
Other hardwoods	3,243,803	14,333	149,094	--	--	--	--	1,334
Noncommercial species	12,031,299	5,400	16,020	47,304	62,481	--	--	8,936
Total	790,547,669	4,151,234	4,911,175	5,386,984	7,232,419	519,783	1,604,522	5,729,663
All species	960,811,597	22,553,842	30,176,477	16,451,866	23,086,489	4,410,964	10,430,851	25,997,855

(Table 67 continued on next page)

(Table 67 continued)

Species group	Forest type							
	Tamarack	Oak-hickory	Elm-ash-soft maple	Maple-birch	Aspen	Paper birch	Exotic	Nonstocked
Softwoods								
Jack pine	31,418	3,424,597	48,708	311,061	1,867,456	124,672	--	94,574
Red pine	15,634	972,275	20,225	566,463	1,790,347	494,230	15,937	--
White pine	253,880	1,847,140	821,535	4,759,714	1,934,477	597,867	--	35,563
White spruce	41,202	16,805	278,509	843,918	1,487,102	446,356	3,638	6,659
Black spruce	843,419	--	178,816	220,200	579,957	125,801	--	--
Balsam fir	433,134	134,040	3,155,139	5,410,232	5,718,453	2,012,807	--	3,978
Hemlock	7,079	58,183	994,833	11,313,245	313,155	172,466	--	21,556
Tamarack	4,278,153	22,045	500,714	206,179	363,355	192,594	--	46,317
Eastern redcedar	--	188,560	100,943	87,999	5,864	5,112	--	--
Northern white-cedar	106,868	7,418	2,332,406	2,162,220	776,542	360,620	--	--
Other softwoods	--	26,959	--	2,678	--	--	69,363	--
Total	6,010,787	6,698,022	8,431,828	25,883,909	14,836,708	4,532,525	88,938	208,647
Hardwoods								
White oak	--	37,577,229	1,263,886	5,130,665	2,633,993	808,866	--	348,434
Select red oak	6,463	59,863,780	1,130,101	17,573,081	8,665,399	3,449,361	--	167,112
Other red oak	--	45,350,183	672,836	2,110,373	3,892,647	315,923	--	863,621
Select hickory	--	6,517,889	16,342	1,206,980	73,827	302,481	--	32,757
Other hickory	--	2,773,577	58,033	2,565,366	176,086	--	--	11,042
Basswood	--	3,836,043	1,339,314	29,626,306	1,541,141	329,524	--	113,900
Beech	--	23,124	39,587	1,951,324	43,505	--	--	--
Yellow birch	18,252	122,883	2,005,554	13,345,042	756,367	306,080	--	20,818
Hard maple	13,816	4,704,214	1,556,177	99,274,111	5,084,105	1,333,947	--	169,102
Soft maple	263,306	8,666,006	19,150,407	38,594,685	17,473,512	4,263,557	--	57,716
Elm	69,549	3,615,508	6,263,670	16,259,802	1,774,698	469,451	--	161,912
Black ash	62,746	516,853	15,619,749	5,188,784	1,730,472	481,748	--	61,401
White & green ash	--	1,583,137	4,167,825	10,009,849	767,423	268,396	--	10,996
Cottonwood	--	368,653	524,134	214,607	182,910	9,229	--	--
Willow	--	49,412	1,135,847	160,385	147,597	15,284	--	89,270
Hackberry	--	65,364	37,068	51,548	--	--	--	--
Balsam poplar	--	50,941	356,199	247,387	1,159,402	85,259	--	--
Bigtooth aspen	147,167	7,243,160	217,473	4,408,311	18,870,653	1,387,257	--	7,400
Quaking aspen	257,155	5,128,925	3,593,975	14,408,045	72,237,941	4,441,814	--	310,931
Paper birch	467,678	7,223,719	2,505,062	11,777,467	16,820,989	22,006,333	--	69,927
River birch	--	94,881	551,492	--	--	--	--	--
Black cherry	11,630	4,417,622	390,475	4,963,521	2,208,001	259,820	--	90,169
Black walnut	--	1,027,001	--	270,484	--	--	--	32,271
Butternut	--	1,111,143	49,802	1,275,472	89,165	12,347	--	38,788
Other hardwoods	--	864,311	1,168,312	881,264	102,469	39,447	--	23,239
Noncommercial species	--	3,058,637	591,161	6,292,701	1,500,951	409,909	--	37,799
Total	1,317,762	205,854,195	64,404,481	287,787,560	157,933,253	40,996,033	--	2,718,605
All species	7,328,549	212,552,217	72,836,309	313,671,469	172,769,961	45,528,558	88,938	2,927,252

Table 68.--All live above-ground tree biomass on timberland by species group and tree biomass component, Wisconsin, 1983

(In green tons)

Species group	All components	Biomass component						
		All live 1- to 5-inch trees	Growing stock			Cull		
			Stumps	Boles	Tops and limbs	Stumps	Boles	Tops and limbs
Softwoods								
Jack pine	24,525,727	5,017,187	1,157,879	14,811,729	1,886,343	104,274	1,377,435	170,880
Red pine	28,248,452	3,219,236	1,386,938	20,739,760	2,580,910	18,562	268,476	34,570
White pine	21,479,769	2,087,330	1,034,037	15,321,416	1,631,278	88,434	1,188,852	128,422
White spruce	8,319,790	1,109,240	528,769	5,031,051	1,428,477	16,571	159,732	45,950
Black spruce	9,832,790	5,033,318	334,544	3,233,810	1,087,976	10,601	99,200	33,341
Balsam fir	32,779,037	10,402,090	1,746,317	15,236,821	4,730,364	49,430	474,370	139,645
Hemlock	14,172,228	659,616	765,857	9,172,329	2,175,672	97,863	1,038,695	262,196
Tamarack	7,734,864	2,486,461	362,140	4,088,231	535,337	19,428	215,543	27,724
Eastern redcedar	413,908	185,178	13,715	98,392	33,343	7,291	57,997	17,992
Northern white-cedar	22,470,067	5,046,468	1,374,049	9,940,996	3,009,173	289,912	2,188,167	621,302
Other softwoods	287,296	95,174	9,410	82,811	26,041	5,132	53,573	15,155
Total	170,263,928	35,341,298	8,713,655	97,757,346	19,124,914	707,498	7,122,040	1,497,177
Hardwoods								
White oak	48,290,056	2,863,045	2,409,762	22,930,809	6,927,345	968,944	9,468,412	2,721,739
Select red oak	92,169,813	2,844,420	4,302,851	54,986,657	16,797,775	755,638	9,696,947	2,785,525
Other red oak	56,767,968	2,703,153	2,280,490	24,672,770	7,730,453	1,288,195	13,885,512	4,207,395
Select hickory	8,179,291	712,997	364,992	4,267,557	1,437,070	84,718	978,682	333,275
Other hickory	5,604,813	1,095,972	228,656	2,814,157	1,077,433	22,603	271,798	94,194
Basswood	36,922,457	2,793,594	1,856,665	21,401,733	6,970,985	238,802	2,816,958	843,720
Beech	2,078,151	182,247	77,971	987,002	287,113	31,497	403,893	108,428
Yellow birch	18,290,773	2,112,582	755,473	7,811,230	2,472,145	348,233	3,672,324	1,118,786
Hard maple	113,008,854	15,374,503	4,453,667	56,081,386	18,795,563	1,011,588	13,178,991	4,113,156
Soft maple	92,266,872	20,442,738	3,128,223	40,107,216	14,388,254	764,324	10,125,043	3,311,074
Elm	29,102,367	3,877,183	1,572,242	14,537,005	4,527,306	354,091	3,247,468	987,072
Black ash	26,180,007	5,389,477	1,295,810	12,846,630	4,781,401	129,610	1,275,491	461,588
White & green ash	16,961,161	1,546,179	756,565	9,673,691	3,201,319	98,425	1,282,667	402,315
Cottonwood	1,521,887	12,699	84,225	1,017,213	259,739	11,408	107,615	28,988
Willow	1,628,441	118,165	64,704	709,880	201,576	33,920	399,589	100,607
Hackberry	153,980	30,626	8,378	79,255	24,627	979	7,266	2,849
Balsam poplar	2,064,843	173,657	82,853	1,284,449	412,495	4,618	82,522	24,249
Bigtooth aspen	33,149,483	2,718,594	1,186,546	21,249,721	5,404,977	108,541	1,998,865	482,239
Quaking aspen	108,311,626	15,825,287	4,056,046	60,485,447	16,325,265	585,063	8,788,875	2,245,643
Paper birch	65,168,212	9,111,871	2,676,524	34,677,051	13,008,173	308,724	3,951,660	1,434,209
River birch	646,373	71,060	22,907	289,898	94,337	8,513	122,284	37,374
Black cherry	12,895,047	2,690,085	369,098	4,760,291	1,700,835	184,295	2,342,088	848,355
Black walnut	1,333,375	14,337	59,349	747,850	233,807	15,367	199,824	62,841
Butternut	2,576,717	98,865	82,340	1,075,822	345,475	55,662	693,507	225,046
Other hardwoods	3,243,803	769,495	77,231	759,942	276,304	94,997	951,485	314,349
Noncommercial species	12,031,299	8,201,090	--	--	--	301,200	2,512,778	1,016,231
Total	790,547,669	101,773,921	32,253,568	400,254,662	127,681,772	7,809,955	92,462,544	28,311,247
All species	960,811,597	137,115,219	40,967,223	498,012,008	146,806,686	8,517,453	99,584,584	29,808,424

Table 69.--All live above-ground tree biomass on timberland by species group and tree biomass component, Wisconsin, 1983

(In thousand cubic feet)

Species group	All components	Biomass component: All live 1- to 5-inch trees	Growing stock: Stumps	Growing stock: Boles	Growing stock: Tops and limbs	Cull: Stumps	Cull: Boles	Cull: Tops and limbs
Softwoods								
Jack pine	1,067,250	218,717	50,359	644,227	82,062	4,549	59,913	7,423
Red pine	1,226,650	144,078	59,994	896,999	111,665	802	11,614	1,498
White pine	951,340	93,403	45,756	677,817	72,175	3,919	52,592	5,678
White spruce	369,926	50,103	23,424	223,175	63,366	736	7,085	2,037
Black spruce	435,781	223,056	14,803	143,338	48,239	467	4,399	1,479
Balsam fir	1,397,836	443,871	74,482	649,545	201,652	2,110	20,221	5,955
Hemlock	561,108	26,180	30,287	363,120	86,148	3,885	41,114	10,374
Tamarack	297,847	98,234	13,801	155,475	20,344	745	8,197	1,051
Eastern redcedar	19,420	8,703	646	4,609	1,562	336	2,720	844
Northern white-cedar	1,240,553	278,289	75,920	548,985	166,199	16,003	120,838	34,319
Other softwoods	13,112	4,342	425	3,784	1,188	234	2,447	692
Total	7,580,823	1,588,976	389,897	4,311,074	854,600	33,786	331,140	71,350
Hardwoods								
White oak	1,662,759	98,598	82,982	789,562	238,519	33,355	326,025	93,718
Select red oak	2,864,621	88,421	133,673	1,708,997	522,096	23,494	301,366	86,574
Other red oak	1,762,192	84,024	70,822	765,805	239,940	40,011	430,979	130,611
Select hickory	257,989	22,541	11,521	134,568	45,321	2,671	30,855	10,512
Other hickory	189,987	37,151	7,747	95,396	36,521	765	9,213	3,194
Basswood	1,751,296	134,094	87,946	1,014,125	330,355	11,305	133,489	39,982
Beech	70,361	6,163	2,640	33,420	9,725	1,069	13,673	3,671
Yellow birch	597,536	68,960	24,717	255,210	80,738	11,378	119,987	36,546
Hard maple	3,600,302	490,207	141,917	1,786,464	598,674	32,214	419,805	131,021
Soft maple	3,334,582	737,990	113,085	1,449,968	520,162	27,632	366,052	119,693
Elm	1,063,309	146,911	57,089	528,134	164,477	12,873	117,972	35,853
Black ash	1,047,216	215,582	51,803	513,887	191,274	5,187	51,018	18,465
White & green ash	663,654	61,981	29,568	377,553	124,952	3,839	50,061	15,700
Cottonwood	59,484	498	3,287	39,761	10,155	442	4,206	1,135
Willow	68,178	4,979	2,706	29,708	8,432	1,421	16,721	4,211
Hackberry	5,909	1,174	324	3,039	946	38	279	109
Balsam poplar	78,393	6,690	3,130	48,704	15,646	173	3,129	921
Bigtooth aspen	1,323,645	109,707	47,321	847,688	215,630	4,327	79,733	19,239
Quaking aspen	4,327,978	638,541	161,828	2,412,891	651,194	23,318	350,623	89,583
Paper birch	2,389,368	334,211	98,162	1,271,360	476,865	11,316	144,868	52,586
River birch	23,698	2,607	839	10,629	3,458	312	4,482	1,371
Black cherry	524,214	109,201	15,025	193,574	69,168	7,505	95,244	34,497
Black walnut	49,775	563	2,213	27,900	8,725	573	7,456	2,345
Butternut	115,077	4,417	3,669	48,050	15,429	2,488	30,974	10,050
Other hardwoods	140,629	33,352	3,341	32,950	11,979	4,126	41,251	13,630
Noncommercial species	481,285	328,076	--	--	--	12,053	100,507	40,649
Total	28,453,437	3,766,639	1,157,355	14,419,343	4,590,381	273,885	3,249,968	995,866
All species	36,034,260	5,355,615	1,547,252	18,730,417	5,444,981	307,671	3,581,108	1,067,216

Table 70.--Removals[1/], net annual growth, and inventory of growing stock on timberland, Wisconsin, 1983, and low removals option projections[2/] to 2013

(In million cubic feet)

Year	Removals: All species	Removals: Softwoods	Removals: Hardwoods	Growth: All species	Growth: Softwoods	Growth: Hardwoods	Inventory: All species	Inventory: Softwoods	Inventory: Hardwoods
1983	285.0	59.4	225.6	491.2	142.6	348.6	15,498.2	3,638.3	11,859.9
1993	309.7	67.5	242.2	535.5	168.0	367.5	17,870.6	4,727.1	13,143.5
2003	333.6	77.1	256.5	515.0	151.5	363.5	19,982.9	5,627.7	14,355.2
2013	365.1	94.9	270.2	446.5	115.6	330.9	21,329.7	6,133.6	15,196.1

1/ Timber removals includes volume "lost" due to land clearing, flooding, thinning, or changes in land use, in addition to timber cut and used.

2/ Based on the following assumptions: (a) that the overall removals rate will be lower than that for the high removals option; (b) that the percent of annual change for removals will be as shown in Table 4 (in text); (c) that the total area of timberland will remain nearly constant between 1983 and 2013; (d) that the intensity of forest management will continue at the rate indicated by recent trends; (e) that the volume of "other" removals will drop during the period as more of these trees are utilized for products; and (f) that radial growth will decline in relation to the increase of basal area per acre of trees.

Table 71.--Removals[1], net annual growth, and inventory of growing stock on timberland, Wisconsin, 1983, and high removals option projections[2] to 2013

(In million cubic feet)

Year	Removals			Growth			Inventory		
	All species	Soft-woods	Hard-woods	All species	Soft-woods	Hard-woods	All species	Soft-woods	Hard-woods
1983	285.0	59.4	225.6	491.2	142.6	348.6	15,498.2	3,638.3	11,859.9
1993	362.8	82.8	280.0	523.9	155.6	368.3	17,583.5	4,612.5	12,971.0
2003	434.2	108.2	326.0	500.8	143.3	357.5	18,759.5	5,163.1	13,596.4
2013	493.3	135.0	358.3	445.5	126.4	319.1	18,880.7	5,305.0	13,575.7

[1]Timber removals includes volume "lost" due to land clearing, flooding, thinning, or changes in land use, in addition to timber cut and used.

[2]Based on the following assumptions: (a) that the overall removals rate will be higher than that for the low removals option; (b) that the percent of annual change for removals will be as shown in Table 4 (in text); (c) that the total area of timberland will remain nearly constant between 1983 and 2013; (d) that the intensity of forest management will continue at the rate indicated by recent trends; (e) that the volume of "other" removals will drop during the period as more of these trees are utilized for products; and (f) that radial growth will decline in relation to the increase of basal area per acre of trees.

Table 72.--Area of land by land class, Wisconsin, 1968 and 1983

(In thousand acres)

Land class	1968	1983
Forest land		
Timberland		
Jack pine	727.6	546.5
Red pine	310.2	478.2
White pine	177.6	225.6
Balsam fir	552.8	419.4
White spruce	75.2	61.4
Black spruce	235.9	273.0
Northern white-cedar	302.4	370.7
Tamarack	222.2	222.7
Oak-hickory	2,664.9	2,858.7
Elm-ash-soft maple	1,157.6	1,240.6
Maple-birch	3,521.6	3,996.9
Aspen	3,664.6	3,261.5
Paper birch	554.4	641.6
Exotic	--	2.2
Nonstocked	369.8	160.4
Subtotal	14,536.8	14,759.4
Woodland	374.4	331.0
Reserved timberland	34.2	260.9
Total	14,945.4	15,351.3
Nonforest land		
Cropland	12,043.3	12,712.4
Pasture and range	1,845.1	2,128.7
Other	6,024.7	4,640.4
Total	19,913.1	19,481.5
Total land	34,858.5	34,832.8
Water (Bureau of the Census)	1,080.1[1]	1,105.0[2]
Total land and water	35,938.6[1]	35,937.8[2]

[1]U.S. Department of Commerce, Bureau of Census, 1960.

[2]U.S. Department of Commerce, Bureau of Census, 1980.

Table 73.--Area of land by land use class and Forest Survey Unit, Wisconsin, 1983

(In thousand acres)

Land use class	All Units	Forest Survey Unit				
		Northeast	Northwest	Central	Southwest	Southeast
Forest land						
Timberland	14,759.4	3,828.5	5,150.8	2,950.9	1,920.0	909.2
Woodland	331.0	140.8	165.8	21.5	--	2.9
Reserved timberland	260.9	52.0	114.6	30.1	38.8	25.4
Total	15,351.3	4,021.3	5,431.2	3,002.5	1,958.8	937.5
Nonforest land						
Nonforest with trees						
Cropland with trees	54.1	3.9	12.6	9.9	7.4	20.3
Improved pasture with trees	322.3	34.7	60.1	99.4	115.9	12.2
Wooded strips	45.0	5.8	8.1	20.9	10.2	--
Idle farmland with trees	110.5	21.5	16.0	60.5	12.5	--
Marsh with trees	312.6	40.1	90.6	149.4	12.7	19.8
Urban and other with trees	244.3	56.4	56.9	69.1	8.7	53.2
Windbreaks	40.8	5.0	10.6	2.6	12.2	10.4
Wooded pasture	112.1	--	30.3	32.0	47.4	2.4
Subtotal	1,241.7	167.4	285.2	443.8	227.0	118.3
Nonforest without trees						
Cropland without trees	12,658.3	744.7	1,259.7	2,431.1	2,895.2	5,327.6
Improved pasture without trees	1,694.3	174.6	255.0	407.3	549.2	308.2
Idle farm without trees	195.2	55.8	14.6	60.3	20.5	44.0
Marsh without trees	1,206.0	215.2	374.2	259.6	55.1	301.9
Other farm-farmstead	364.2	36.4	23.2	88.8	66.0	149.8
Urban and other	2,028.7	244.9	269.2	449.4	372.1	693.1
Noncensus water	93.1	39.9	13.1	27.4	6.6	6.1
Subtotal	18,239.8	1,511.5	2,209.0	3,723.9	3,964.7	6,830.7
Total	19,481.5	1,678.9	2,494.2	4,167.7	4,191.7	6,949.0
Total land	34,832.8	5,700.2	7,925.4	7,170.2	6,150.5	7,886.5
Water (Bureau of the Census)[1/]	1,105.0	262.8	290.3	114.6	126.0	311.3
Total land and water[1/]	35,937.8	5,963.0	8,215.7	7,284.8	6,276.5	8,197.8

[1/] U.S. Department of Commerce, Bureau of Census, 1980.

Table 74.--Area of land and forest land by county, Wisconsin, 1983

(In thousand cubic feet)

County	All land[1/]	All forest	Forest land			Timberland as a percent of land area	All forest as a percent of land area	Sampling error for commercial forest land (percent)
			Woodland	Reserved timberland	Timberland			
Northeast Unit								
Florence	310.8	254.2	3.5	6.7	244.0	79	82	1.74
Forest	647.1	543.9	34.8	16.4	492.7	76	84	1.22
Langlade	559.0	391.7	17.2	--	374.5	67	70	1.40
Lincoln	567.1	411.2	16.7	0.7	393.8	69	73	1.37
Menominee	229.7	213.1	--	--	213.1	93	93	1.86
Marinette	893.1	661.0	16.7	4.6	639.7	72	74	1.07
Oconto	641.4	357.4	6.6	3.7	347.1	54	56	1.46
Oneida	723.2	531.1	34.0	--	497.1	69	73	1.22
Shawano	574.0	259.2	4.0	--	255.2	45	45	1.70
Vilas	554.8	398.5	7.3	19.9	371.3	67	72	1.41
All counties	5,700.2	4,021.3	140.8	52.0	3,828.5	67	71	0.44
Northwest Unit								
Ashland	670.9	569.1	26.6	38.7	503.8	75	85	1.16
Barron	553.4	165.7	7.0	--	158.7	29	30	2.07
Bayfield	935.8	780.1	14.3	25.3	740.5	79	83	0.96
Burnett	523.3	335.9	1.9	16.9	317.1	61	64	1.46
Douglas	835.5	640.3	9.6	2.8	627.9	75	77	1.04
Iron	481.0	400.1	17.3	4.9	377.9	79	83	1.34
Polk	588.4	230.0	3.8	5.4	220.8	38	39	1.75
Price	803.8	598.4	41.3	6.3	550.8	69	74	1.11
Rusk	584.4	373.2	6.0	4.1	363.1	62	64	1.37
Sawyer	803.3	638.9	21.0	10.2	607.7	76	80	1.06
Taylor	624.2	368.0	13.6	--	354.4	57	59	1.38
Washburn	521.4	331.5	3.4	--	328.1	63	64	1.44
All counties	7,925.4	5,431.2	165.8	114.6	5,150.8	65	69	0.36
Central Unit								
Adams	414.7	236.7	--	2.4	234.3	57	57	1.24
Chippewa	650.9	232.4	2.5	4.2	225.7	35	36	1.26
Clark	779.6	316.1	--	--	316.1	41	41	1.07
Eau Claire	408.3	156.3	--	1.8	154.5	38	38	1.53
Jackson	638.6	378.9	4.6	2.9	371.4	58	59	0.98
Juneau	495.5	256.0	--	3.9	252.1	51	52	1.19
Marathon	997.9	365.4	4.8	2.1	358.5	36	37	1.00
Marquette	290.9	94.3	--	--	94.3	32	32	1.95
Monroe	578.3	247.3	2.3	--	245.0	42	43	1.21
Portage	518.5	174.3	--	--	174.3	34	34	1.44
Waupaca	482.8	181.1	7.3	1.2	172.6	36	38	1.44
Waushara	401.7	157.2	--	11.6	145.6	36	39	1.57
Wood	512.5	206.5	--	--	206.5	40	40	1.32
All counties	7,170.2	3,002.5	21.5	30.1	2,950.9	41	42	0.35

(Table 74 continued on next page)

[1/] 1980 Bureau of the Census estimates.

(Table 74 continued)

County	All land[1/]	All forest	Forest land			Timberland as a percent of land area	All forest as a percent of land area	Sampling error for commercial forest land (percent)
			Woodland	Reserved timberland	Timberland			
Southwest Unit								
Buffalo	447.6	193.4	--	5.5	187.9	42	43	1.26
Crawford	362.1	168.8	--	1.0	167.8	46	47	1.34
Dunn	546.2	171.1	--	1.1	170.0	31	31	1.33
Grant	732.2	186.4	--	1.9	184.5	25	26	1.27
Iowa	486.5	140.7	--	4.7	136.0	28	29	1.48
La Crosse	292.6	121.6	--	--	121.6	42	42	1.57
Lafayette	405.9	38.2	--	0.6	37.6	9	9	2.82
Pepin	147.8	53.9	--	0.5	53.4	36	37	2.37
Pierce	369.0	102.1	--	1.5	100.6	27	28	1.72
Richland	374.1	159.4	--	0.7	158.7	42	43	1.37
St. Croix	462.5	77.7	--	4.8	72.9	16	17	2.03
Sauk	536.2	192.0	--	10.3	181.7	34	36	1.28
Trempealeau	470.9	151.1	--	4.1	147.0	31	32	1.43
Vernon	516.9	202.4	--	2.1	200.3	39	39	1.22
All counties	6,150.5	1,958.8	--	38.8	1,920.0	31	32	0.39
Southeast Unit								
Brown	335.5	49.1	--	1.7	47.4	14	15	1.83
Calumet	208.9	25.1	--	0.4	24.7	12	12	2.54
Columbia	493.5	84.4	--	0.2	84.2	17	17	1.37
Dane	770.9	91.1	--	0.9	90.2	12	12	1.32
Dodge	567.9	27.8	--	0.2	27.6	5	5	2.39
Door	314.5	120.0	--	13.7	106.3	34	38	1.22
Fond du Lac	463.8	35.1	--	1.2	33.9	7	8	2.16
Green	373.3	30.9	--	--	30.9	8	8	2.26
Green Lake	228.2	21.0	--	--	21.0	9	9	2.74
Jefferson	359.6	29.3	--	0.3	29.0	8	8	2.34
Kenosha	174.5	11.7	--	0.9	10.8	6	7	3.83
Kewaunee	219.5	36.8	--	--	36.8	17	17	2.07
Manitowoc	380.1	57.4	--	0.9	56.5	15	15	1.67
Milwaukee	154.6	2/	--	--	--	--	--	--
Outagamie	411.0	70.7	--	--	70.7	17	17	1.49
Ozaukee	150.3	16.3	--	--	16.3	11	11	3.12
Racine	214.1	17.7	--	0.8	16.9	8	8	3.06
Rock	463.0	28.1	--	1.2	26.9	6	6	2.43
Sheboygan	329.8	52.6	--	1.1	51.5	16	16	1.74
Walworth	355.6	35.8	--	0.2	35.6	10	10	2.10
Washington	275.5	45.8	--	0.1	45.7	17	17	1.85
Waukesha	354.8	36.6	2.9	1.6	32.1	9	10	2.22
Winnebago	287.6	14.2	--	--	14.2	5	5	3.34
All counties	7,886.5	937.5	2.9	25.4	909.2	12	12	0.42
State total	34,832.8	15,351.3	331.0	260.9	14,759.4	42	44	0.22

[1/] 1980 Bureau of the Census estimates.

[2/] All of Milwaukee County was classified as nonforest urban land.

Table 75.--Area of timberland by county and ownership class, Wisconsin, 1983

(In thousand acres)

County	All owners	Ownership class								
		National Forest	Misc. federal	State	County & municipal	Indian	Forest industry	Farmer	Misc. priv.-corp.	Misc. priv.-indiv.
Northeast Unit										
Florence	244.0	67.5	--	7.2	39.6	--	50.4	9.0	12.7	57.6
Forest	492.7	274.7	--	15.1	7.3	7.3	77.1	5.6	11.1	94.5
Langlade	374.5	30.3	1.9	17.2	114.2	--	47.5	55.1	5.7	102.6
Lincoln	393.8	--	--	3.8	81.2	--	59.2	57.1	5.5	187.0
Menominee	213.1	--	--	--	--	213.1	--	--	--	--
Marinette	639.7	--	--	3.6	255.4	--	30.6	52.7	36.1	261.3
Oconto	347.1	126.8	--	--	44.3	--	--	74.4	7.6	94.0
Oneida	497.1	7.9	--	54.4	57.7	--	180.0	8.5	39.1	149.5
Shawano	255.2	--	2.0	6.0	8.0	18.0	26.0	119.2	4.0	72.0
Vilas	371.3	41.6	--	86.4	39.2	16.1	14.5	--	41.3	132.2
All counties	3,828.5	548.8	3.9	193.7	646.9	254.5	485.3	381.6	163.1	1,150.7
Northwest Unit										
Ashland	503.8	143.3	--	10.0	40.6	38.5	42.3	26.5	46.7	155.9
Barron	158.7	--	--	6.9	16.1	--	--	55.2	6.9	73.6
Bayfield	740.5	238.7	--	8.8	160.6	7.2	89.2	41.3	17.8	176.9
Burnett	317.1	--	5.6	26.5	100.2	--	7.6	45.3	5.6	126.3
Douglas	627.9	--	--	32.4	253.8	--	99.4	30.5	28.5	183.3
Iron	377.9	--	--	19.2	141.7	10.5	80.7	10.5	24.5	90.8
Polk	220.8	--	--	5.7	24.4	--	--	66.7	14.7	109.3
Price	550.8	105.2	--	17.9	64.4	--	39.3	15.9	21.5	286.6
Rusk	363.1	--	--	6.0	79.6	--	51.6	83.0	3.9	139.0
Sawyer	607.7	99.0	1.7	33.0	100.5	38.4	98.2	7.0	28.2	201.7
Taylor	354.4	107.3	--	5.3	8.9	--	9.0	39.4	3.6	180.9
Washburn	328.1	--	--	5.1	119.0	--	11.9	28.9	22.1	141.1
All counties	5,150.8	693.5	7.3	176.8	1,109.8	94.6	529.2	450.2	224.0	1,865.4
Central Unit										
Adams	234.3	--	--	7.0	2.3	--	33.5	37.6	14.4	139.5
Chippewa	225.7	--	--	4.7	22.3	--	--	102.0	17.5	79.2
Clark	316.1	--	--	--	134.1	--	2.4	101.8	4.9	72.9
Eau Claire	154.5	--	--	2.4	54.7	--	--	33.3	2.4	61.7
Jackson	371.4	--	29.4	42.1	87.9	2.2	20.4	124.1	4.6	60.7
Juneau	252.1	--	59.9	4.2	15.0	--	6.6	49.4	21.6	99.4
Marathon	358.5	--	--	7.1	26.1	2.4	32.9	163.1	14.0	112.9
Marquette	94.3	--	--	--	--	--	--	44.8	--	49.5
Monroe	245.0	--	45.3	--	9.1	--	--	109.2	11.4	70.0
Portage	174.3	--	--	11.0	--	--	4.4	54.1	2.2	102.6
Waupaca	172.6	--	--	--	--	--	9.8	87.4	4.9	70.5
Waushara	145.6	--	--	11.3	--	--	2.3	49.1	15.8	67.1
Wood	206.5	--	--	6.8	47.8	--	13.7	40.8	15.8	81.6
All counties	2,950.9	--	130.6	96.6	399.3	4.6	126.0	996.7	129.5	1,067.6

(Table 75 continued on next page)

(Table 75 continued)

County	All owners	Ownership class								
		National Forest	Misc. federal	State	County & municipal	Indian	Forest industry	Farmer	Misc. priv.-corp.	Misc. priv.-indiv.
Southwest Unit										
Buffalo	187.9	--	--	5.6	--	--	--	149.4	8.3	24.6
Crawford	167.8	--	8.4	--	--	--	--	81.1	8.4	69.9
Dunn	170.0	--	--	--	2.6	--	--	91.9	13.1	62.4
Grant	184.5	--	6.2	6.0	3.1	--	--	127.0	6.1	36.1
Iowa	136.0	--	--	8.2	--	--	--	84.4	16.2	27.2
La Crosse	121.6	--	3.3	6.6	--	--	--	69.5	9.9	32.3
Lafayette	37.6	--	--	--	--	--	--	28.2	--	9.4
Pepin	53.4	--	--	2.8	--	--	--	42.1	--	8.5
Pierce	100.6	--	--	--	2.7	--	--	89.7	--	8.2
Richland	158.7	--	--	--	--	--	--	103.0	13.9	41.8
St. Croix	72.9	--	--	5.6	--	--	--	31.0	5.7	30.6
Sauk	181.7	--	--	--	2.5	--	--	111.9	5.0	62.3
Trempealeau	147.0	--	--	--	--	--	--	118.2	--	28.8
Vernon	200.3	--	11.9	--	--	--	--	128.5	6.2	53.7
All counties	1,920.0	--	29.8	34.8	10.9	--	--	1,255.9	92.8	495.8
Southeast Unit										
Brown	47.4	--	2.5	--	5.0	--	--	20.0	2.5	17.4
Calumet	24.7	--	--	4.8	--	--	--	9.9	--	10.0
Columbia	84.2	--	--	7.4	--	--	2.5	27.1	2.4	44.8
Dane	90.2	--	--	5.4	--	--	--	54.7	2.7	27.4
Dodge	27.6	--	--	--	--	--	--	18.3	2.3	7.0
Door	106.3	--	--	2.7	--	--	5.4	40.8	8.3	49.1
Fond du Lac	33.9	--	2.1	8.5	--	--	--	14.7	2.2	6.4
Green	30.9	--	--	--	2.4	--	--	23.8	--	4.7
Green Lake	21.0	--	--	--	--	--	--	14.1	--	6.9
Jefferson	29.0	--	--	--	--	--	--	15.8	2.6	10.6
Kenosha	10.8	--	--	1.8	--	--	--	3.6	--	5.4
Kewaunee	36.8	--	--	--	--	--	--	23.5	2.6	10.7
Manitowoc	56.5	--	--	8.1	--	--	2.6	24.2	2.7	18.9
Milwaukee	--	--	--	--	--	--	--	--	--	--
Outagamie	70.7	--	--	--	--	--	5.0	25.0	10.0	30.7
Ozaukee	16.3	--	--	--	--	--	--	6.5	3.2	6.6
Racine	16.9	--	--	--	--	--	--	6.8	--	10.1
Rock	26.9	--	--	5.0	--	--	--	14.6	2.5	4.8
Sheboygan	51.5	--	--	8.9	2.3	--	--	20.3	2.3	17.7
Walworth	35.6	--	--	--	--	--	--	10.1	10.2	15.3
Washington	45.7	--	--	3.3	3.2	--	--	29.4	--	9.8
Waukesha	32.1	--	--	11.6	--	--	--	17.6	--	2.9
Winnebago	14.2	--	--	--	--	--	--	8.5	--	5.7
All counties	909.2	--	4.6	67.5	12.9	--	15.5	429.3	56.5	322.9
State total	14,759.4	1,242.3	176.2	569.4	2,179.8	353.7	1,156.0	3,513.7	665.9	4,902.4

Table 76.--Area of timberland by county and forest type, Wisconsin, 1983

(In thousand acres)

County	All types	Forest type														
		Jack pine	Red pine	White pine	Balsam fir	White spruce	Black spruce	Northern white-cedar	Tamarack	Oak-hickory	Elm-ash-soft maple	Maple-birch	Aspen	Paper birch	Exotic	Non-stocked
Northeast Unit																
Florence	244.0	--	6.8	3.7	10.9	5.9	5.2	6.7	4.0	7.2	1.8	97.2	80.2	10.8	--	3.6
Forest	492.7	--	20.1	3.3	38.8	8.5	23.5	31.5	5.6	--	10.4	233.0	100.7	17.3	--	--
Langlade	374.5	3.9	6.4	--	33.2	--	11.4	13.4	11.5	--	17.1	183.2	86.8	7.6	--	--
Lincoln	393.8	5.6	14.6	3.6	29.8	1.8	16.6	--	5.6	3.7	33.5	127.8	125.4	23.9	--	1.9
Menominee	213.1	1.8	1.8	10.8	--	--	3.6	10.6	--	17.9	9.0	121.9	32.1	1.8	--	1.8
Marinette	639.7	25.5	27.1	7.2	16.5	1.9	5.5	43.7	3.6	61.6	52.6	148.3	211.8	32.6	--	1.8
Oconto	347.1	10.8	24.2	7.4	5.5	--	--	33.6	1.8	21.7	38.9	84.9	92.5	20.2	--	5.6
Oneida	497.1	11.3	26.3	15.7	34.0	1.7	52.6	22.0	18.7	8.5	13.6	74.7	167.0	47.6	--	3.4
Shawano	255.2	2.0	8.0	4.0	4.0	--	6.0	18.0	4.0	14.0	54.0	111.3	25.9	2.0	--	2.0
Vilas	371.3	20.8	22.5	25.4	15.2	--	23.1	6.5	8.2	14.7	5.0	97.9	104.3	27.7	--	--
All counties	3,828.5	81.7	157.8	81.1	187.9	19.8	147.5	186.0	63.0	149.3	235.9	1,280.2	1,026.7	191.5	--	20.1
Northwest Unit																
Ashland	503.8	0.7	9.5	2.0	52.0	14.7	13.9	22.7	13.4	2.0	26.9	187.8	138.1	20.1	--	--
Barron	158.7	2.3	--	--	--	--	2.3	--	2.3	46.0	9.2	34.5	46.0	13.8	--	2.3
Bayfield	740.5	58.1	54.4	10.9	20.8	--	7.1	5.4	6.2	66.8	33.6	167.3	253.7	54.4	--	1.8
Burnett	317.1	54.6	10.0	1.9	--	--	3.8	--	5.7	79.0	29.2	21.6	90.4	13.3	--	7.6
Douglas	627.9	74.2	17.2	1.9	44.0	--	17.1	5.7	9.5	59.4	57.2	74.3	208.4	49.6	--	9.4
Iron	377.9	--	5.3	--	35.1	1.7	12.4	38.3	3.6	5.2	27.9	159.3	71.8	17.3	--	--
Polk	220.8	13.2	--	--	--	--	--	--	5.4	66.9	14.9	59.2	53.9	7.3	--	--
Price	550.8	2.2	12.0	--	41.8	3.1	14.6	17.4	28.5	--	60.5	174.4	166.2	17.6	--	12.5
Rusk	363.1	--	3.9	6.0	2.0	--	10.0	2.0	2.0	18.0	43.8	132.9	120.7	17.8	--	4.0
Sawyer	607.7	1.7	13.4	12.1	15.4	8.8	20.4	9.4	10.2	26.4	45.4	249.1	151.6	28.3	--	15.5
Taylor	354.4	--	1.8	--	8.5	3.6	6.2	3.5	14.5	--	42.5	163.9	83.4	15.7	--	10.8
Washburn	328.1	40.8	5.1	1.7	--	--	3.4	3.4	10.2	45.9	23.8	54.4	124.1	13.6	--	1.7
All counties	5,150.8	247.8	132.6	36.5	219.6	31.9	111.2	107.8	111.5	415.6	414.9	1,478.7	1,508.3	268.8	--	65.6
Central Unit																
Adams	234.3	40.3	33.8	4.7	--	--	--	--	--	103.7	2.4	14.3	25.5	4.8	--	4.8
Chippewa	225.7	--	--	5.0	--	--	2.4	--	7.3	34.5	36.9	72.8	42.1	17.2	--	7.5
Clark	316.1	4.8	4.9	4.9	--	--	--	--	--	61.1	19.4	65.5	134.1	19.0	--	2.4
Eau Claire	154.5	7.2	7.1	4.7	--	--	--	--	--	78.6	7.1	11.9	33.1	4.8	--	--
Jackson	371.4	62.8	15.8	15.7	--	--	2.3	--	13.5	148.4	13.7	24.4	61.0	13.8	--	--
Juneau	252.1	45.2	12.8	4.3	--	--	2.2	--	--	103.5	15.2	17.3	49.5	2.1	--	--
Marathon	358.5	--	2.4	4.7	4.7	--	2.4	9.4	2.3	16.3	51.9	156.3	87.2	14.0	--	6.9
Marquette	94.3	--	6.8	4.4	--	--	--	--	2.3	56.0	8.9	4.6	4.6	4.5	--	2.2
Monroe	245.0	22.7	2.3	4.4	--	--	--	--	--	142.8	9.1	31.9	11.4	15.8	--	4.6
Portage	174.3	4.4	17.4	2.2	--	--	--	4.4	2.1	48.0	22.0	32.2	35.1	4.3	--	2.2
Waupaca	172.6	--	9.8	4.8	7.2	--	--	7.3	4.8	29.2	48.9	45.8	12.3	2.5	--	--
Waushara	145.6	4.4	17.9	9.0	--	--	--	2.2	4.5	72.1	13.3	8.7	6.9	2.2	2.2	2.2
Wood	206.5	11.3	4.5	9.1	--	2.2	2.3	--	2.2	43.4	22.7	20.5	74.7	13.6	--	--
All counties	2,950.9	203.1	135.5	77.9	11.9	2.2	11.6	23.3	39.0	937.6	271.5	506.2	577.5	118.6	2.2	32.8

(Table 76 continued on next page)

(Table 76 continued)

County	All types	Forest type														
		Jack pine	Red pine	White pine	Balsam fir	White spruce	Black spruce	Northern white-cedar	Tamarack	Oak-hickory	Elm-ash-soft maple	Maple-birch	Aspen	Paper birch	Exotic	Non-stocked
Southwest Unit																
Buffalo	187.9	--	--	--	--	--	--	--	--	121.8	13.8	13.8	16.6	19.1	--	2.8
Crawford	167.8	--	--	--	--	--	--	--	--	103.5	19.6	33.5	0.0	5.6	--	5.6
Dunn	170.0	2.6	13.1	--	--	--	--	--	--	78.6	10.4	52.3	7.8	5.2	--	--
Grant	184.5	--	--	--	--	--	--	--	--	124.0	12.2	42.2	6.1	--	--	--
Iowa	136.0	--	2.7	--	--	--	--	--	--	100.9	8.3	16.0	2.7	2.7	--	2.7
La Crosse	121.6	3.3	3.3	3.4	--	--	--	--	--	79.3	6.6	13.2	9.2	3.3	--	--
Lafayette	37.6	--	--	--	--	--	--	--	--	21.2	--	16.4	--	--	--	--
Pepin	53.4	2.8	--	--	--	--	--	--	--	25.3	8.4	11.3	2.8	2.8	--	--
Pierce	100.6	--	--	--	--	--	--	--	--	24.8	5.5	56.9	8.2	--	--	5.2
Richland	158.7	--	--	--	--	--	--	--	--	61.4	5.5	89.0	2.8	--	--	--
St. Croix	72.9	--	8.1	--	--	2.5	--	--	--	19.9	11.3	5.7	16.8	--	--	8.6
Sauk	181.7	2.5	5.0	--	--	--	--	--	--	104.5	2.5	57.2	7.5	--	--	2.5
Trempealeau	147.0	--	7.9	7.8	--	--	--	--	--	78.8	10.6	18.3	5.2	15.7	--	2.7
Vernon	200.3	--	--	2.5	--	--	--	--	--	119.4	3.1	72.1	--	--	--	3.2
All counties	1,920.0	11.2	40.1	13.7	--	2.5	--	--	--	1,063.4	117.8	497.9	85.7	54.4	--	33.3
Southeast Unit																
Brown	47.4	--	--	--	--	--	--	--	--	4.9	10.0	27.5	5.0	--	--	--
Calumet	24.7	--	--	--	--	--	--	--	--	2.5	9.8	12.4	--	--	--	--
Columbia	84.2	--	7.4	--	--	--	--	--	--	49.6	2.5	12.4	12.3	--	--	--
Dane	90.2	2.7	--	--	--	--	--	--	--	68.4	2.8	5.4	10.9	--	--	--
Dodge	27.6	--	--	2.3	--	--	--	--	--	4.5	9.2	9.4	2.2	--	--	--
Door	106.3	--	--	2.8	--	2.8	--	29.7	--	2.7	24.5	29.8	11.2	--	--	2.8
Fond du Lac	33.9	--	2.2	--	--	--	--	--	2.1	8.6	8.4	10.5	2.1	--	--	--
Green	30.9	--	--	2.4	--	--	--	--	--	18.9	4.8	4.8	--	--	--	--
Green Lake	21.0	--	--	2.4	--	--	--	--	2.3	14.0	--	2.3	--	--	--	--
Jefferson	29.0	--	2.6	--	--	--	--	--	--	10.7	--	15.7	--	--	--	--
Kenosha	10.8	--	--	1.8	--	--	--	--	--	7.2	--	1.8	--	--	--	--
Kewaunee	36.8	--	--	--	--	--	--	5.2	--	--	21.1	10.5	--	--	--	--
Manitowoc	56.5	--	--	--	--	--	2.7	8.1	--	2.7	18.8	21.5	2.7	--	--	--
Milwaukee	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Outagamie	70.7	--	--	2.5	--	--	--	5.1	2.5	2.5	30.3	15.3	5.0	5.0	--	2.5
Ozaukee	16.3	--	--	--	--	--	--	--	--	--	3.2	9.8	--	3.3	--	--
Racine	16.9	--	--	--	--	--	--	--	--	6.8	3.4	3.3	3.4	--	--	--
Rock	26.9	--	--	--	--	--	--	--	--	21.9	2.5	2.5	--	--	--	--
Sheboygan	51.5	--	--	2.2	--	2.2	--	2.2	2.3	6.7	17.9	15.8	2.2	--	--	--
Walworth	35.6	--	--	--	--	--	--	--	--	30.5	--	5.1	--	--	--	--
Washington	45.7	--	--	--	--	--	--	3.3	--	6.5	19.7	9.6	3.3	--	--	3.3
Waukesha	32.1	--	--	--	--	--	--	--	--	20.3	8.8	--	3.0	--	--	--
Winnebago	14.2	--	--	--	--	--	--	--	--	2.9	2.8	8.5	--	--	--	--
All counties	909.2	2.7	12.2	16.4	--	5.0	2.7	53.6	9.2	292.8	200.5	233.9	63.3	8.3	--	8.6
State total	14,759.4	546.5	478.2	225.6	419.4	61.4	273.0	370.7	222.7	2,858.7	1,240.6	3,996.9	3,261.5	641.6	2.2	160.4

Table 77.--Area of timberland by county and stand-size class, Wisconsin, 1983

(In thousand acres)

County	All stands	Stand-size class			
		Sawtimber stands	Poletimber stands	Sapling and seedling stands	Nonstocked areas
Northeast Unit					
Florence	244.0	83.3	111.9	45.2	3.6
Forest	492.7	149.7	258.4	84.6	--
Langlade	374.5	85.8	215.8	72.9	--
Lincoln	393.8	61.1	195.8	135.0	1.9
Menominee	213.1	145.0	54.0	12.3	1.8
Marinette	639.7	136.0	309.5	192.4	1.8
Oconto	347.1	84.5	184.9	72.1	5.6
Oneida	497.1	93.9	211.3	188.5	3.4
Shawano	255.2	98.0	115.9	39.3	2.0
Vilas	371.3	115.5	166.8	89.0	--
All counties	3,828.5	1,052.8	1,824.3	931.3	20.1
Northwest Unit					
Ashland	503.8	135.9	263.6	104.3	--
Barron	158.7	57.5	64.4	34.5	2.3
Bayfield	740.5	144.0	407.2	187.5	1.8
Burnett	317.1	74.5	133.3	101.7	7.6
Douglas	627.9	106.5	301.7	210.3	9.4
Iron	377.9	108.5	192.0	77.4	--
Polk	220.8	64.7	98.4	57.7	--
Price	550.8	97.9	256.6	183.8	12.5
Rusk	363.1	103.0	192.4	63.7	4.0
Sawyer	607.7	162.1	312.9	117.2	15.5
Taylor	354.4	52.0	179.4	112.2	10.8
Washburn	328.1	45.9	183.6	96.9	1.7
All counties	5,150.8	1,152.5	2,585.5	1,347.2	65.6
Central Unit					
Adams	234.3	47.2	82.1	100.2	4.8
Chippewa	225.7	66.0	84.1	68.1	7.5
Clark	316.1	71.1	129.1	113.5	2.4
Eau Claire	154.5	35.7	90.5	28.3	--
Jackson	371.4	92.3	155.8	123.3	--
Juneau	252.1	81.8	105.7	64.6	--
Marathon	358.5	114.5	143.5	93.6	6.9
Marquette	94.3	38.1	22.6	31.4	2.2
Monroe	245.0	99.5	88.8	52.1	4.6
Portage	174.3	50.3	65.6	56.2	2.2
Waupaca	172.6	95.6	51.3	25.7	--
Waushara	145.6	38.1	64.8	40.5	2.2
Wood	206.5	52.3	68.2	86.0	--
All counties	2,950.9	882.5	1,152.1	883.5	32.8

(Table 77 continued on next page)

(Table 77 continued)

County	All stands	Stand-size class			
		Sawtimber stands	Poletimber stands	Sapling and seedling stands	Nonstocked areas
Southwest Unit					
Buffalo	187.9	127.1	38.5	19.5	2.8
Crawford	167.8	98.0	30.7	33.5	5.6
Dunn	170.0	75.9	57.6	36.5	--
Grant	184.5	133.2	30.1	21.2	--
Iowa	136.0	65.5	38.1	29.7	2.7
La Crosse	121.6	86.0	19.9	15.7	--
Lafayette	37.6	23.5	2.4	11.7	--
Pepin	53.4	30.9	11.2	11.3	--
Pierce	100.6	46.7	21.8	26.9	5.2
Richland	158.7	75.1	36.2	47.4	--
St. Croix	72.9	11.2	31.4	21.7	8.6
Sauk	181.7	74.5	42.4	62.3	2.5
Trempealeau	147.0	76.2	36.6	31.5	2.7
Vernon	200.3	150.6	25.0	21.5	3.2
All counties	1,920.0	1,074.4	421.9	390.4	33.3
Southeast Unit					
Brown	47.4	27.4	10.0	10.0	--
Calumet	24.7	9.9	9.9	4.9	--
Columbia	84.2	37.1	29.8	17.3	--
Dane	90.2	73.8	11.0	5.4	--
Dodge	27.6	16.0	4.6	7.0	--
Door	106.3	37.9	30.1	35.5	2.8
Fond du Lac	33.9	21.2	4.2	8.5	--
Green	30.9	26.1	4.8	--	--
Green Lake	21.0	9.4	11.6	--	--
Jefferson	29.0	23.8	2.6	2.6	--
Kenosha	10.8	5.4	5.4	--	--
Kewaunee	36.8	23.7	13.1	--	--
Manitowoc	56.5	32.4	16.1	8.0	--
Milwaukee	--	--	--	--	--
Outagamie	70.7	27.9	25.0	15.3	2.5
Ozaukee	16.3	3.2	6.6	6.5	--
Racine	16.9	6.8	--	10.1	--
Rock	26.9	19.5	4.9	2.5	--
Sheboygan	51.5	13.6	24.5	13.4	--
Walworth	35.6	35.6	--	--	--
Washington	45.7	12.9	19.6	9.9	3.3
Waukesha	32.1	20.3	3.0	8.8	--
Winnebago	14.2	8.6	2.8	2.8	--
All counties	909.2	492.5	239.6	168.5	8.6
State total	14,759.4	4,654.7	6,223.4	3,720.9	160.4

Table 78.--Area of timberland by county and site class, Wisconsin, 1983

(In thousand acres)

County	All classes	Site class (cubic feet of growth per acre per year)					
		225+	165-224	120-164	85-119	50-84	20-49
Northeast Unit							
Florence	244.0	--	--	10.5	72.1	100.5	60.9
Forest	492.7	--	--	22.9	89.1	251.7	129.0
Langlade	374.5	--	--	6.6	83.8	152.8	131.3
Lincoln	393.8	--	--	20.2	97.8	160.7	115.1
Menominee	213.1	--	--	7.2	44.9	107.3	53.7
Marinette	639.7	--	--	14.6	114.5	306.1	204.5
Oconto	347.1	--	--	31.5	104.4	111.0	100.2
Oneida	497.1	--	--	11.9	109.9	202.2	173.1
Shawano	255.2	--	2.0	8.0	65.9	97.3	82.0
Vilas	371.3	--	--	10.0	80.6	194.6	86.1
All counties	3,828.5	--	2.0	143.4	863.0	1,684.2	1,135.9
Northwest Unit							
Ashland	503.8	--	--	15.0	119.0	260.0	109.8
Barron	158.7	--	--	4.6	46.0	89.7	18.4
Bayfield	740.5	--	--	17.2	192.0	365.1	166.2
Burnett	317.1	--	--	1.9	67.6	128.1	119.5
Douglas	627.9	--	--	30.5	132.1	248.0	217.3
Iron	377.9	--	--	7.1	68.2	129.8	172.8
Polk	220.8	--	--	1.8	52.1	107.5	59.4
Price	550.8	--	--	25.1	132.6	205.9	187.2
Rusk	363.1	--	--	5.8	93.0	174.8	89.5
Sawyer	607.7	--	--	1.7	132.8	273.8	199.4
Taylor	354.4	--	--	3.5	90.4	162.3	98.2
Washburn	328.1	--	--	6.8	83.3	142.8	95.2
All counties	5,150.8	--	--	121.0	1,209.1	2,287.8	1,532.9
Central Unit							
Adams	234.3	--	--	5.2	44.8	102.0	82.3
Chippewa	225.7	--	--	9.9	41.6	103.5	70.7
Clark	316.1	--	--	4.9	78.0	170.7	62.5
Eau Claire	154.5	--	--	4.8	18.9	95.3	35.5
Jackson	371.4	--	--	11.2	54.5	180.0	125.7
Juneau	252.1	--	2.2	10.8	38.6	121.0	79.5
Marathon	358.5	--	--	6.9	77.2	164.8	109.6
Marquette	94.3	--	--	6.8	17.9	24.6	45.0
Monroe	245.0	--	--	6.8	22.9	117.8	97.5
Portage	174.3	--	--	10.9	32.8	62.8	67.8
Waupaca	172.6	--	--	7.2	58.7	66.3	40.4
Waushara	145.6	--	2.2	13.6	20.1	63.1	46.6
Wood	206.5	--	--	--	58.7	100.3	47.5
All counties	2,950.9	--	4.4	99.0	564.7	1,372.2	910.6

(Table 78 continued on next page)

(Table 78 continued)

County	All classes	Site class (cubic feet of growth per acre per year) 225+	165-224	120-164	85-119	50-84	20-49
Southwest Unit							
Buffalo	187.9	--	--	8.4	50.0	88.3	41.2
Crawford	167.8	--	--	--	39.2	75.5	53.1
Dunn	170.0	--	--	10.6	41.7	55.0	62.7
Grant	184.5	--	--	--	42.7	96.6	45.2
Iowa	136.0	--	--	2.7	24.4	62.7	46.2
La Crosse	121.6	--	--	9.1	26.6	52.8	33.1
Lafayette	37.6	--	--	--	7.1	9.4	21.1
Pepin	53.4	--	--	--	5.6	14.1	33.7
Pierce	100.6	--	--	--	16.4	30.2	54.0
Richland	158.7	--	--	5.6	44.6	83.4	25.1
St. Croix	72.9	--	--	5.7	14.2	33.5	19.5
Sauk	181.7	--	--	10.0	52.3	64.7	54.7
Trempealeau	147.0	--	--	10.5	41.9	52.4	42.2
Vernon	200.3	--	--	6.3	50.0	87.8	56.2
All counties	1,920.0	--	--	68.9	456.7	806.4	588.0
Southeast Unit							
Brown	47.4	--	--	2.5	10.0	27.4	7.5
Calumet	24.7	--	--	--	4.9	14.9	4.9
Columbia	84.2	--	--	2.5	32.4	34.6	14.7
Dane	90.2	--	--	--	16.5	35.5	38.2
Dodge	27.6	--	--	2.3	13.7	9.1	2.5
Door	106.3	--	--	--	13.8	30.1	62.4
Fond du Lac	33.9	--	--	--	8.6	12.6	12.7
Green	30.9	--	--	2.4	9.6	14.2	4.7
Green Lake	21.0	--	--	--	--	11.5	9.5
Jefferson	29.0	--	--	--	7.8	13.3	7.9
Kenosha	10.8	--	--	1.8	--	3.6	5.4
Kewaunee	36.8	--	--	--	7.9	18.5	10.4
Manitowoc	56.5	--	--	2.7	8.1	18.7	27.0
Milwaukee	--	--	--	--	--	--	--
Outagamie	70.7	--	--	5.0	5.0	25.1	35.6
Ozaukee	16.3	--	--	--	3.3	9.8	3.2
Racine	16.9	--	--	--	3.3	3.4	10.2
Rock	26.9	--	--	--	4.9	17.2	4.8
Sheboygan	51.5	--	--	--	11.2	20.2	20.1
Walworth	35.6	--	--	--	5.0	10.2	20.4
Washington	45.7	--	--	--	3.2	19.6	22.9
Waukesha	32.1	--	--	--	--	5.9	26.2
Winnebago	14.2	--	--	2.8	2.9	--	8.5
All counties	909.2	--	--	22.0	172.1	355.4	359.7
State total	14,759.4	--	6.4	454.3	3,265.6	6,506.0	4,527.1

Table 79.--Area of timberland by county and stocking class of growing-stock trees, Wisconsin, 1983

(In thousand acres)

County	All classes	Stocking percent of growing-stock trees				
		Less than 16.7	16.7-59.9	60.0-99.9	100.0-129.9	130.0+
Northeast Unit						
Florence	244.0	3.6	18.1	86.1	105.9	30.3
Forest	492.7	--	17.8	151.0	234.6	89.3
Langlade	374.5	--	38.0	159.9	134.6	42.0
Lincoln	393.8	1.9	52.1	161.4	145.2	33.2
Menominee	213.1	1.8	10.7	44.7	93.1	62.8
Marinette	639.7	1.8	94.7	191.9	257.2	94.1
Oconto	347.1	5.6	25.9	122.0	126.7	66.9
Oneida	497.1	3.4	50.9	173.8	183.0	86.0
Shawano	255.2	2.0	47.3	80.0	102.0	23.9
Vilas	371.3	--	19.5	149.0	135.3	67.5
All counties	3,828.5	20.1	375.0	1,319.8	1,517.6	596.0
Northwest Unit						
Ashland	503.8	--	45.4	192.0	219.1	47.3
Barron	158.7	2.3	36.8	69.0	36.8	13.8
Bayfield	740.5	1.8	63.4	265.3	285.7	124.3
Burnett	317.1	7.6	50.9	129.6	110.1	18.9
Douglas	627.9	9.4	82.1	259.6	219.7	57.1
Iron	377.9	--	33.4	167.8	150.3	26.4
Polk	220.8	--	46.4	124.4	38.9	11.1
Price	550.8	12.5	102.5	254.7	132.0	49.1
Rusk	363.1	4.0	73.3	186.7	77.5	21.6
Sawyer	607.7	15.5	74.3	257.3	214.0	46.6
Taylor	354.4	10.8	44.2	134.6	130.9	33.9
Washburn	328.1	1.7	39.1	122.4	125.8	39.1
All counties	5,150.8	65.6	691.8	2,163.4	1,740.8	489.2
Central Unit						
Adams	234.3	4.8	49.2	85.5	66.5	28.3
Chippewa	225.7	7.5	58.3	86.2	61.4	12.3
Clark	316.1	2.4	60.7	141.4	89.6	22.0
Eau Claire	154.5	--	33.5	83.2	26.0	11.8
Jackson	371.4	--	71.8	144.8	112.6	42.2
Juneau	252.1	--	49.4	112.4	81.8	8.5
Marathon	358.5	6.9	67.5	159.9	105.2	19.0
Marquette	94.3	2.2	36.1	33.7	17.9	4.4
Monroe	245.0	4.6	74.8	124.7	40.9	--
Portage	174.3	2.2	15.3	76.8	64.7	15.3
Waupaca	172.6	--	30.8	63.6	58.6	19.6
Waushara	145.6	2.2	33.8	51.4	33.7	24.5
Wood	206.5	--	43.2	74.4	75.3	13.6
All counties	2,950.9	32.8	624.4	1,238.0	834.2	221.5

(Table 79 continued on next page)

(Table 79 continued)

County	All classes	Stocking percent of growing-stock trees: Less than 16.7	16.7-59.9	60.0-99.9	100.0-129.9	130.0+
Southwest Unit						
Buffalo	187.9	2.8	49.5	94.0	36.1	5.5
Crawford	167.8	5.6	25.1	95.1	39.2	2.8
Dunn	170.0	--	39.1	88.8	34.2	7.9
Grant	184.5	--	93.8	63.4	21.2	6.1
Iowa	136.0	2.7	57.2	59.9	16.2	--
La Crosse	121.6	--	33.2	65.3	19.8	3.3
Lafayette	37.6	--	16.4	21.2	--	--
Pepin	53.4	--	19.7	28.0	5.7	--
Pierce	100.6	5.2	27.2	57.4	10.8	--
Richland	158.7	--	39.0	91.8	25.1	2.8
St. Croix	72.9	8.6	22.4	33.7	2.9	5.3
Sauk	181.7	2.5	34.8	87.1	54.8	2.5
Trempealeau	147.0	2.7	36.7	73.3	29.0	5.3
Vernon	200.3	3.2	68.4	78.3	50.4	--
All counties	1,920.0	33.3	562.5	937.3	345.4	41.5
Southeast Unit						
Brown	47.4	--	14.9	17.5	12.5	2.5
Calumet	24.7	--	14.8	5.0	2.4	2.5
Columbia	84.2	--	9.8	44.7	27.2	2.5
Dane	90.2	--	24.8	46.3	16.4	2.7
Dodge	27.6	--	11.5	9.4	6.7	--
Door	106.3	2.8	14.0	35.4	40.6	13.5
Fond du Lac	33.9	--	14.7	12.7	6.5	--
Green	30.9	--	11.9	16.7	2.3	--
Green Lake	21.0	--	4.7	11.7	4.6	--
Jefferson	29.0	--	7.9	10.5	7.9	2.7
Kenosha	10.8	--	--	9.0	1.8	--
Kewaunee	36.8	--	7.8	13.2	10.6	5.2
Manitowoc	56.5	--	21.5	21.5	13.5	--
Milwaukee	--	--	--	--	--	--
Outagamie	70.7	2.5	23.2	25.0	20.0	--
Ozaukee	16.3	--	--	9.8	6.5	--
Racine	16.9	--	3.4	10.2	3.3	--
Rock	26.9	--	7.4	17.0	2.5	--
Sheboygan	51.5	--	17.8	27.0	4.5	2.2
Walworth	35.6	--	10.2	25.4	--	--
Washington	45.7	3.3	26.1	13.0	3.3	--
Waukesha	32.1	--	20.5	11.6	--	--
Winnebago	14.2	--	--	8.6	2.8	2.8
All counties	909.2	8.6	266.9	401.2	195.9	36.6
State total	14,759.4	160.4	2,520.6	6,059.7	4,633.9	1,384.8

Table 80.--Area of timberland by ownership class and Forest Survey Unit, Wisconsin, 1983

(In thousand acres)

Ownership class	All Units	Forest Survey Unit: Northeast	Northwest	Central	Southwest	Southeast
National Forest	1,242.3	548.8	693.5	--	--	--
Miscellaneous federal	176.2	3.9	7.3	130.6	29.8	4.6
State	569.4	193.7	176.8	96.6	34.8	67.5
County and municipal	2,179.8	646.9	1,109.8	399.3	10.9	12.9
Indian	353.7	254.5	94.6	4.6	--	--
Forest industry	1,156.0	485.3	529.2	126.0	--	15.5
Farmer	3,513.7	381.6	450.2	996.7	1,255.9	429.3
Misc. private-corp.	665.9	163.1	224.0	129.5	92.8	56.5
Misc. private-indiv.	4,902.4	1,150.7	1,865.4	1,067.6	495.8	322.9
All owners	14,759.4	3,828.5	5,150.8	2,950.9	1,920.0	909.2

Table 81.--Area of timberland by ownership class and site class, Wisconsin, 1983

(In thousand acres)

Ownership class	All classes	Site class (cubic feet of growth per acre per year)					
		225+	165-224	120-164	85-119	50-84	20-49
National Forest	1,242.3	--	--	65.2	376.9	575.0	225.2
Miscellaneous federal	176.2	--	--	--	32.9	70.6	72.7
State	569.4	--	--	17.4	98.1	241.1	212.8
County and municipal	2,179.8	--	--	41.0	434.1	1,029.9	674.8
Indian	353.7	--	--	10.9	81.6	190.7	70.5
Forest industry	1,156.0	--	--	24.9	229.2	486.9	415.0
Farmer	3,513.7	--	--	117.4	833.3	1,450.1	1,112.9
Misc. private-corp.	665.9	--	2.2	15.6	136.8	295.4	215.9
Misc. private-indiv.	4,902.4	--	4.2	161.9	1,042.7	2,166.3	1,527.3
All owners	14,759.4	--	6.4	454.3	3,265.6	6,506.0	4,527.1

Table 82.--Area of timberland by ownership class and stand-volume class, Wisconsin, 1983

(In thousand acres)

Ownership class	All classes	Stand-volume class (board feet[1/])		
		Less than 1,500	1,500 to 5,000	5,000+
National Forest	1,242.3	480.3	596.6	165.4
Miscellaneous federal	176.2	104.9	52.4	18.9
State	569.4	275.3	216.5	77.6
County and municipal	2,179.8	1,187.7	810.3	181.8
Indian	353.7	71.7	118.7	163.3
Forest industry	1,156.0	534.7	426.8	194.5
Farmer	3,513.7	1,421.4	1456.6	635.7
Misc. private-corp.	665.9	284.4	300.0	81.5
Misc. private-indiv.	4,902.4	2,335.7	1,937.6	629.1
All owners	14,759.4	6,696.1	5,915.5	2,147.8

[1/] International 1/4-inch rule.

Table 83.--Area of timberland by ownership class and stocking class of growing-stock trees, Wisconsin, 1983

(In thousand acres)

Ownership class	All classes	Stocking percent of growing-stock trees				
		Less than 16.7	16.7-59.9	60.0-99.9	100.0-129.9	130.0+
National Forest	1,242.3	--	29.7	347.4	591.2	274.0
Miscellaneous federal	176.2	5.5	47.2	96.1	19.0	8.4
State	569.4	5.3	110.1	193.7	188.1	72.2
County and municipal	2,179.8	16.3	298.8	881.6	721.6	261.5
Indian	353.7	3.8	22.5	95.5	147.6	84.3
Forest industry	1,156.0	12.5	108.8	453.7	455.8	125.2
Farmer	3,513.7	36.5	890.6	1,588.1	833.7	164.8
Misc. private-corp.	665.9	5.3	135.7	285.4	200.6	38.9
Misc. private-indiv.	4,902.4	75.2	877.2	2,118.2	1,476.3	355.5
All owners	14,759.4	160.4	2,520.6	6,059.7	4,633.9	1,384.8

Table 84.--Area of privately owned[1/] timberland by ownership class, owner tenure, and size of holding, Wisconsin, 1983

(In thousand acres)

Ownership class and owner tenure class	All sizes	Size of holding (acres)								
		1-4	5-10	11-20	21-50	51-100	101-500	501-1,500	2,501-5,000	5,001+
Forest Industry										
1-4 years	78.6	--	--	--	--	3.5	1.9	11.2	1.8	60.2
5-9 years	134.1	--	--	--	--	4.2	2.0	9.2	1.7	117.0
10-19 years	331.1	--	--	--	5.0	--	2.0	14.4	7.1	302.6
20+ years	612.2	--	--	--	--	2.3	2.3	3.6	5.3	598.7
All classes	1,156.0	--	--	--	5.0	10.0	8.2	38.4	15.9	1,078.5
Farmer										
1-4 years	644.3	2.5	11.1	69.6	156.8	171.2	219.7	10.2	3.2	--
5-9 years	688.5	15.8	16.3	71.0	186.3	184.5	200.7	13.9	--	--
10-19 years	1,141.2	17.2	33.5	103.1	294.1	309.6	369.2	12.7	1.8	--
20+ years	1,039.7	16.6	40.5	103.6	264.4	289.2	312.6	11.1	1.7	--
All classes	3,513.7	52.1	101.4	347.3	901.6	954.5	1,102.2	47.9	6.7	--
Miscellaneous private corporation										
1-4 years	135.7	3.2	2.4	--	33.7	22.9	37.8	11.2	1.8	22.7
5-9 years	101.7	--	--	--	16.9	16.5	35.5	18.9	4.1	9.8
10-19 years	155.9	2.5	4.8	--	14.8	34.4	44.6	32.0	7.0	15.8
20+ years	272.6	--	--	3.9	15.1	21.6	62.9	78.3	24.9	65.9
All classes	665.9	5.7	7.2	3.9	80.5	95.4	180.8	140.4	37.8	114.2
Miscellaneous private individual										
1-4 years	1,260.6	30.3	60.3	98.7	452.7	314.3	286.9	13.7	1.8	1.9
5-9 years	1,186.5	38.0	66.2	96.9	389.1	293.8	279.9	22.6	--	--
10-19 years	1,434.2	37.3	58.3	82.6	438.4	340.9	411.7	61.6	3.4	--
20+ years	1,021.1	16.6	22.6	54.5	303.0	266.3	307.5	47.7	--	2.9
All classes	4,902.4	122.2	207.4	332.7	1,583.2	1,215.3	1,286.0	145.6	5.2	4.8
All private owners										
1-4 years	2,119.2	36.0	73.8	168.3	643.2	511.9	546.3	46.3	8.6	84.8
5-9 years	2,110.8	53.8	82.5	167.9	592.3	499.0	518.1	64.6	5.8	126.8
10-19 years	3,062.4	57.0	96.6	185.7	752.3	684.9	827.5	120.7	19.3	318.4
20+ years	2,945.6	33.2	63.1	162.0	582.5	579.4	685.3	140.7	31.9	667.5
All classes	10,238.0	180.0	316.0	683.9	2,570.3	2,275.2	2,577.2	372.3	65.6	1,197.5

[1/] Does not include Indian land, because data on size of holding and owner tenure were not collected on Indian land.

Table 85.--Area of timberland by forest type and ownership class, Wisconsin, 1983

(In thousand acres)

Forest type	All owners	Ownership class								
		National Forest	Misc. federal	State	County & municipal	Indian	Forest industry	Farmer	Misc. priv.-corp.	Misc. priv.-indiv.
Jack pine	546.5	50.3	24.6	33.4	137.2	5.6	69.1	44.6	20.9	160.8
Red pine	478.2	103.4	9.0	29.1	80.8	8.9	49.7	35.2	30.4	131.7
White pine	225.6	15.2	6.9	9.6	24.4	17.4	16.9	49.0	15.0	71.2
Balsam fir	419.4	66.0	--	21.7	71.6	4.1	42.1	35.6	16.8	161.5
White spruce	61.4	31.2	--	1.7	1.8	--	5.7	--	2.1	18.9
Black spruce	273.0	36.5	2.2	28.1	58.9	3.6	38.3	19.2	5.3	80.9
Northern white-cedar	370.7	65.6	--	18.9	46.2	17.8	38.0	57.7	12.0	114.5
Tamarack	222.7	16.9	--	22.2	21.5	1.6	16.2	41.4	13.7	89.2
Oak-hickory	2,858.7	45.2	46.6	68.9	224.5	23.1	78.1	1,262.6	146.6	963.1
Elm-ash-soft maple	1,240.6	25.3	27.7	60.3	169.6	14.9	86.8	357.6	59.2	439.2
Maple-birch	3,996.9	432.1	7.4	109.9	467.1	164.5	440.6	958.1	155.4	1,261.8
Aspen	3,261.5	315.9	40.2	140.0	743.8	83.0	222.4	473.0	144.6	1,098.6
Paper birch	641.6	38.7	6.1	20.3	116.1	5.4	39.6	143.2	38.6	233.6
Exotic	2.2	--	--	--	--	--	--	--	--	2.2
Nonstocked	160.4	--	5.5	5.3	16.3	3.8	12.5	36.5	5.3	75.2
All types	14,759.4	1,242.3	176.2	569.4	2,179.8	353.7	1,156.0	3,513.7	665.9	4,902.4

Table 86.--Area of timberland by forest type and Forest Survey Unit, Wisconsin, 1983

(In thousand acres)

Forest type	All Units	Forest Survey Unit				
		Northeast	Northwest	Central	Southwest	Southeast
Jack pine	546.5	81.7	247.8	203.1	11.2	2.7
Red pine	478.2	157.8	132.6	135.5	40.1	12.2
White pine	225.6	81.1	36.5	77.9	13.7	16.4
Balsam fir	419.4	187.9	219.6	11.9	--	--
White spruce	61.4	19.8	31.9	2.2	2.5	5.0
Black spruce	273.0	147.5	111.2	11.6	--	2.7
Northern white-cedar	370.7	186.0	107.8	23.3	--	53.6
Tamarack	222.7	63.0	111.5	39.0	--	9.2
Oak-hickory	2,858.7	149.3	415.6	937.6	1,063.4	292.8
Elm-ash-soft maple	1,240.6	235.9	414.9	271.5	117.8	200.5
Maple-birch	3,996.9	1,280.2	1,478.7	506.2	497.9	233.9
Aspen	3,261.5	1,026.7	1,508.3	577.5	85.7	63.3
Paper birch	641.6	191.5	268.8	118.6	54.4	8.3
Exotic	2.2	--	--	2.2	--	--
Nonstocked	160.4	20.1	65.6	32.8	33.3	8.6
All types	14,759.4	3,828.5	5,150.8	2,950.9	1,920.0	909.2

Table 87.--Area of timberland by forest type and stand-age class, Wisconsin, 1983

(In thousand acres)

Forest type	All ages	Stand-age class (years)												
		1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-120	121-140	141+
Jack pine	546.5	34.2	98.6	73.7	116.9	145.2	57.4	9.4	9.2	1.9	--	--	--	--
Red pine	478.2	53.9	104.4	108.3	97.3	54.6	23.9	7.3	7.8	7.0	10.5	3.2	--	--
White pine	225.6	12.6	18.6	10.8	18.3	22.5	22.3	24.7	30.6	31.0	4.3	10.1	8.1	11.7
Balsam fir	419.4	48.9	30.7	44.6	48.4	49.5	100.8	51.6	14.1	12.9	3.5	7.5	5.0	1.9
White spruce	61.4	7.1	12.7	10.7	13.9	6.5	8.5	2.0	--	--	--	--	--	--
Black spruce	273.0	29.1	41.9	71.1	35.7	27.6	14.3	14.3	24.7	8.8	3.6	--	1.9	--
Northern white-cedar	370.7	9.8	14.5	18.4	7.7	47.9	33.0	38.6	29.8	37.7	57.8	30.8	21.5	23.2
Tamarack	222.7	20.7	50.4	40.2	13.6	21.5	17.1	19.4	15.8	14.9	1.7	3.8	1.8	1.8
Oak-hickory	2,858.7	297.3	149.0	98.2	123.6	337.6	423.5	274.8	283.1	223.8	203.0	208.9	145.8	90.1
Elm-ash-soft maple	1,240.6	132.0	117.9	86.0	118.9	160.6	123.6	133.1	129.7	89.2	59.9	50.2	28.7	10.8
Maple-birch	3,996.9	304.0	273.6	232.7	258.1	612.3	681.9	479.6	241.5	239.1	201.9	215.9	128.0	128.3
Aspen	3,261.5	651.3	451.0	312.4	471.1	702.5	404.9	154.2	71.6	37.4	5.1	--	--	--
Paper birch	641.6	56.9	53.5	59.5	95.3	148.7	130.4	76.0	15.3	1.9	0.3	3.8	--	--
Exotic	2.2	--	2.2	--	--	--	--	--	--	--	--	--	--	--
Nonstocked	160.4	160.4	--	--	--	--	--	--	--	--	--	--	--	--
All types	14,759.4	1,818.2	1,419.0	1,166.6	1,418.8	2,337.0	2,041.6	1,285.0	873.2	705.6	551.6	534.2	340.8	267.8

Table 88.--Area of timberland by forest type and physiographic class, Wisconsin, 1983

(In thousand acres)

Forest type	All classes	Physiographic class				
		Xeric	Xeromesic	Mesic	Hydromesic	Hydric
Jack pine	546.5	29.0	361.0	114.0	39.1	3.4
Red pine	478.2	1.9	271.8	204.5	--	--
White pine	225.6	--	35.0	161.2	23.7	5.7
Balsam fir	419.4	--	6.8	143.2	188.2	81.2
White spruce	61.4	--	2.5	44.8	14.1	--
Black spruce	273.0	--	--	13.6	61.6	197.8
Northern white-cedar	370.7	--	1.8	22.5	164.6	181.8
Tamarack	222.7	--	--	6.8	76.0	139.9
Oak-hickory	2,858.7	20.2	546.5	2,194.7	93.6	3.7
Elm-ash-soft maple	1,240.6	--	4.4	77.5	985.0	173.7
Maple-birch	3,996.9	3.2	54.0	3,695.4	236.9	7.4
Aspen	3,261.5	--	159.0	2,314.5	741.3	46.7
Paper birch	641.6	--	16.6	487.2	117.6	20.2
Exotic	2.2	--	2.2	--	--	--
Nonstocked	160.4	1.8	24.2	68.7	44.4	21.3
All types	14,759.4	56.1	1,485.8	9,548.6	2,786.1	882.8

Table 89.--Area of timberland by forest type and stand-size class, Wisconsin, 1983

(In thousand acres)

Forest type	All stands	Stand-size class			
		Sawtimber stands	Poletimber stands	Sapling and seedling stands	Nonstocked areas
Jack pine	546.5	93.9	281.0	171.6	--
Red pine	478.2	159.2	193.9	125.1	--
White pine	225.6	157.6	43.9	24.1	--
Balsam fir	419.4	116.9	184.4	118.1	--
White spruce	61.4	23.0	20.2	18.2	--
Black spruce	273.0	7.3	82.0	183.7	--
Northern white-cedar	370.7	115.3	206.9	48.5	--
Tamarack	222.7	15.3	89.0	118.4	--
Oak-hickory	2,858.7	1,526.5	841.8	490.4	--
Elm-ash-soft maple	1,240.6	415.4	524.8	300.4	--
Maple-birch	3,996.9	1,543.8	1,749.4	703.7	--
Aspen	3,261.5	401.6	1,585.9	1,274.0	--
Paper birch	641.6	78.9	420.2	142.5	--
Exotic	2.2	--	--	2.2	--
Nonstocked	160.4	--	--	--	160.4
All types	14,759.4	4,654.7	6,223.4	3,720.9	160.4

Table 90.--Area of timberland by forest type, stand-size class, and ownership class, Wisconsin, 1983

(In thousand acres)

Forest type and stand-size class	All owners	Ownership class								
		National Forest	Misc. federal	State	County & municipal	Indian	Forest industry	Farmer	Misc. priv.-corp.	Misc. priv.-indiv.
Jack pine										
Sawtimber	93.9	3.7	4.3	3.5	21.5	4.0	9.1	14.5	4.2	29.1
Poletimber	281.0	46.1	8.9	12.1	71.9	1.6	35.0	21.2	6.5	77.7
Sapling & seedling	171.6	0.5	11.4	17.8	43.8	--	25.0	8.9	10.2	54.0
All stands	546.5	50.3	24.6	33.4	137.2	5.6	69.1	44.6	20.9	160.8
Red pine										
Sawtimber	159.2	47.6	2.1	14.6	30.2	5.4	5.4	9.8	5.9	38.2
Poletimber	193.9	24.3	--	10.9	32.2	3.5	13.6	23.5	17.3	68.6
Sapling & seedling	125.1	31.5	6.9	3.6	18.4	--	30.7	1.9	7.2	24.9
All stands	478.2	103.4	9.0	29.1	80.8	8.9	49.7	35.2	30.4	131.7
White pine										
Sawtimber	157.6	13.2	2.2	4.0	20.5	15.6	11.8	37.2	9.7	43.4
Poletimber	43.9	2.0	2.2	3.4	1.7	1.8	1.7	5.0	5.3	20.8
Sapling & seedling	24.1	--	2.5	2.2	2.2	--	3.4	6.8	--	7.0
All stands	225.6	15.2	6.9	9.6	24.4	17.4	16.9	49.0	15.0	71.2
Balsam fir										
Sawtimber	116.9	20.9	--	5.4	19.9	2.0	15.9	11.2	2.3	39.3
Poletimber	184.4	38.6	--	10.9	35.2	2.1	10.6	5.8	9.0	72.2
Sapling & seedling	118.1	6.5	--	5.4	16.5	--	15.6	18.6	5.5	50.0
All stands	419.4	66.0	--	21.7	71.6	4.1	42.1	35.6	16.8	161.5
White spruce										
Sawtimber	23.0	19.3	--	--	--	--	2.0	--	--	1.7
Poletimber	20.2	8.7	--	--	--	--	1.7	--	2.1	7.7
Sapling & seedling	18.2	3.2	--	1.7	1.8	--	2.0	--	--	9.5
All stands	61.4	31.2	--	1.7	1.8	--	5.7	--	2.1	18.9
Black spruce										
Sawtimber	7.3	--	--	1.7	3.8	--	--	--	--	1.8
Poletimber	82.0	15.7	--	8.4	18.2	3.6	10.6	2.0	--	23.5
Sapling & seedling	183.7	20.8	2.2	18.0	36.9	--	27.7	17.2	5.3	55.6
All stands	273.0	36.5	2.2	28.1	58.9	3.6	38.3	19.2	5.3	80.9
Northern white-cedar										
Sawtimber	115.3	9.0	--	13.5	17.7	5.3	21.6	7.8	4.4	36.0
Poletimber	206.9	52.9	--	5.4	21.3	10.8	12.9	33.2	5.8	64.6
Sapling & seedling	48.5	3.7	--	--	7.2	1.7	3.5	16.7	1.8	13.9
All stands	370.7	65.6	--	18.9	46.2	17.8	38.0	57.7	12.0	114.5

(Table 90 continued on next page)

(Table 90 continued)

Forest type and stand-size class	All owners	Ownership class								
		National Forest	Misc. federal	State	County & municipal	Indian	Forest industry	Farmer	Misc. priv.-corp.	Misc. priv.-indiv.
Tamarack										
Sawtimber	15.3	--	--	2.1	--	--	3.7	4.0	1.8	3.7
Poletimber	89.0	15.5	--	5.4	10.2	--	5.4	11.1	1.7	39.7
Sapling & seedling	118.4	1.4	--	14.7	11.3	1.6	7.1	26.3	10.2	45.8
All stands	222.7	16.9	--	22.2	21.5	1.6	16.2	41.4	13.7	89.2
Oak-hickory										
Sawtimber	1,526.5	3.0	8.8	31.6	29.5	17.9	14.5	877.8	80.6	462.8
Poletimber	841.8	39.9	22.4	19.9	127.4	3.4	17.2	266.8	44.7	300.1
Sapling & seedling	490.4	2.3	15.4	17.4	67.6	1.8	46.4	118.0	21.3	200.2
All stands	2,858.7	45.2	46.6	68.9	224.5	23.1	78.1	1,262.6	146.6	963.1
Elm-ash-soft maple										
Sawtimber	415.4	1.8	19.3	23.7	50.6	9.2	24.4	142.1	21.8	122.5
Poletimber	524.8	19.8	5.6	18.4	87.8	3.9	40.1	135.2	16.1	197.9
Sapling & seedling	300.4	3.7	2.8	18.2	31.2	1.8	22.3	80.3	21.3	118.8
All stands	1,240.6	25.3	27.7	60.3	169.6	14.9	86.8	357.6	59.2	439.2
Maple-birch										
Sawtimber	1,543.8	112.0	5.2	51.4	114.2	120.1	193.9	449.0	62.0	436.0
Poletimber	1,749.4	316.3	--	36.7	271.6	41.0	195.9	251.4	79.7	556.8
Sapling & seedling	703.7	3.8	2.2	21.8	81.3	3.4	50.8	257.7	13.7	269.0
All stands	3,996.9	432.1	7.4	109.9	467.1	164.5	440.6	958.1	155.4	1,261.8
Aspen										
Sawtimber	401.6	14.5	6.4	20.1	62.2	14.8	27.0	84.2	14.6	157.8
Poletimber	1,585.9	149.3	17.6	50.5	358.4	49.4	88.3	231.5	74.1	566.8
Sapling & seedling	1,274.0	152.1	16.2	69.4	323.2	18.8	107.1	157.3	55.9	374.0
All stands	3,261.5	315.9	40.2	140.0	743.8	83.0	222.4	473.0	144.6	1,098.6
Paper birch										
Sawtimber	78.9	0.6	--	1.6	6.2	--	1.9	28.5	1.7	38.4
Poletimber	420.2	32.8	3.8	16.9	82.2	5.4	35.9	63.3	34.5	145.4
Sapling & seedling	142.5	5.3	2.3	1.8	27.7	--	1.8	51.4	2.4	49.8
All stands	641.6	38.7	6.1	20.3	116.1	5.4	39.6	143.2	38.6	233.6
Exotic										
Sawtimber	--	--	--	--	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--	--	--	--	--
Sapling & seedling	2.2	--	--	--	--	--	--	--	--	2.2
All stands	2.2	--	--	--	--	--	--	--	--	2.2
Nonstocked	160.4	--	5.5	5.3	16.3	3.8	12.5	36.5	5.3	75.2
All types										
Sawtimber	4,654.7	245.6	48.3	173.2	376.3	194.3	331.2	1,666.1	209.0	1,410.7
Poletimber	6,223.4	761.9	60.5	198.9	1,118.1	126.5	468.9	1,050.0	296.8	2,141.8
Sapling & seedling	3,720.9	234.8	61.9	192.0	669.1	29.1	343.4	761.1	154.8	1,274.7
Nonstocked	160.4	--	5.5	5.3	16.3	3.8	12.5	36.5	5.3	75.2
All stands	14,759.4	1,242.3	176.2	569.4	2,179.8	353.7	1,156.0	3,513.7	665.9	4,902.4

Table 91.--Area of timberland by forest type, stand-size class, and site class, Wisconsin, 1983

(In thousand acres)

Forest type and stand-size class	All classes	Site class (cubic feet of growth per acre per year)					
		225+	165-224	120-164	85-119	50-84	20-49
Jack pine							
Sawtimber	93.9	--	--	--	7.0	51.7	35.2
Poletimber	281.0	--	--	--	20.6	153.1	107.3
Sapling & seedling	171.6	--	--	1.9	9.8	69.9	90.0
All stands	546.5	--	--	1.9	37.4	274.7	232.5
Red pine							
Sawtimber	159.2	--	--	45.5	69.6	39.9	4.2
Poletimber	193.9	--	4.4	72.1	102.8	13.0	1.6
Sapling & seedling	125.1	--	--	12.3	42.8	55.1	14.9
All stands	478.2	--	4.4	129.9	215.2	108.0	20.7
White pine							
Sawtimber	157.6	--	--	25.4	66.7	43.9	21.6
Poletimber	43.9	--	--	13.6	10.7	11.8	7.8
Sapling & seedling	24.1	--	--	1.8	11.4	10.9	--
All stands	225.6	--	--	40.8	88.8	66.6	29.4
Balsam fir							
Sawtimber	116.9	--	--	52.5	35.7	19.8	8.9
Poletimber	184.4	--	--	50.9	73.1	38.1	22.3
Sapling & seedling	118.1	--	2.0	31.1	37.2	22.8	25.0
All stands	419.4	--	2.0	134.5	146.0	80.7	56.2
White spruce							
Sawtimber	23.0	--	--	--	16.4	6.6	--
Poletimber	20.2	--	--	--	10.9	9.3	--
Sapling & seedling	18.2	--	--	--	3.8	6.1	8.3
All stands	61.4	--	--	--	31.1	22.0	8.3
Black spruce							
Sawtimber	7.3	--	--	--	--	1.8	5.5
Poletimber	82.0	--	--	--	6.8	9.6	65.6
Sapling & seedling	183.7	--	--	--	8.2	12.2	163.3
All stands	273.0	--	--	--	15.0	23.6	234.4
Northern white-cedar							
Sawtimber	115.3	--	--	--	4.6	32.7	78.0
Poletimber	206.9	--	--	--	--	48.4	158.5
Sapling & seedling	48.5	--	--	--	--	9.7	38.8
All stands	370.7	--	--	--	4.6	90.8	275.3

(Table 91 continued on next page)

(Table 91 continued)

Forest type and stand-size class	All classes	Site class (cubic feet of growth per acre per year)					
		225+	165-224	120-164	85-119	50-84	20-49
Tamarack							
Sawtimber	15.3	--	--	--	1.9	5.7	7.7
Poletimber	89.0	--	--	--	4.1	43.7	41.2
Sapling & seedling	118.4	--	--	--	4.1	44.3	70.0
All stands	222.7	--	--	--	10.1	93.7	118.9
Oak-hickory							
Sawtimber	1,526.5	--	--	10.0	294.8	745.5	476.2
Poletimber	841.8	--	--	--	137.4	473.0	231.4
Sapling & seedling	490.4	--	--	2.5	74.0	234.3	179.6
All stands	2,858.7	--	--	12.5	506.2	1,452.8	887.2
Elm-ash-soft maple							
Sawtimber	415.4	--	--	--	52.4	121.8	241.2
Poletimber	524.8	--	--	--	56.8	137.9	330.1
Sapling & seedling	300.4	--	--	--	13.4	74.2	212.8
All stands	1,240.6	--	--	--	122.6	333.9	784.1
Maple-birch							
Sawtimber	1,543.8	--	--	16.5	266.2	792.7	468.4
Poletimber	1,749.4	--	--	18.9	342.8	941.2	446.5
Sapling & seedling	703.7	--	--	16.0	100.9	318.7	268.1
All stands	3,996.9	--	--	51.4	709.9	2,052.6	1,183.0
Aspen							
Sawtimber	401.6	--	--	19.0	192.6	169.3	20.7
Poletimber	1,585.9	--	--	35.6	686.2	744.4	119.7
Sapling & seedling	1,274.0	--	--	16.7	415.3	634.8	207.2
All stands	3,261.5	--	--	71.3	1,294.1	1,548.5	347.6
Paper birch							
Sawtimber	78.9	--	--	5.1	15.0	31.6	27.2
Poletimber	420.2	--	--	5.2	34.0	212.2	168.8
Sapling & seedling	142.5	--	--	--	17.6	53.2	71.7
All stands	641.6	--	--	10.3	66.6	297.0	267.7
Exotic							
Sawtimber	--	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--	--
Sapling & seedling	2.2	--	--	--	2.2	--	--
All stands	2.2	--	--	--	2.2	--	--
Nonstocked	160.4	--	--	1.7	15.8	61.1	81.8
All types							
Sawtimber	4,654.7	--	--	174.0	1,022.9	2,063.0	1,394.8
Poletimber	6,223.4	--	4.4	196.3	1,486.2	2,835.7	1,700.8
Sapling & seedling	3,720.9	--	2.0	82.3	740.7	1,546.2	1,349.7
Nonstocked	160.4	--	--	1.7	15.8	61.1	81.8
All stands	14,759.4	--	6.4	454.3	3,265.6	6,506.0	4,527.1

Table 92.--Area of timberland by forest type, stand-size class, and basal-area class, Wisconsin, 1983

(In thousand acres)

Forest type and stand-size class	All classes	Basal area class (square feet per acre)													
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-120	121-150	151-180	181+
Jack pine															
Sawtimber	93.9	--	--	--	7.9	3.6	9.8	9.5	12.8	16.1	8.0	17.2	7.2	1.8	--
Poletimber	281.0	--	--	--	4.2	10.0	22.4	22.6	51.1	44.7	64.9	38.5	18.5	1.9	2.2
Sapling & seedling	171.6	21.0	6.8	24.7	16.7	20.4	16.1	20.6	39.7	3.8	1.8	--	--	--	--
All stands	546.5	21.0	6.8	24.7	28.8	34.0	48.3	52.7	103.6	64.6	74.7	55.7	25.7	3.7	2.2
Red pine															
Sawtimber	159.2	--	--	--	2.8	2.0	1.9	--	7.3	9.4	11.4	46.8	43.4	27.0	7.2
Poletimber	193.9	--	--	--	--	3.4	6.1	6.5	8.5	19.9	6.8	42.3	42.0	22.4	36.0
Sapling & seedling	125.1	55.5	10.7	8.6	6.0	4.6	15.8	--	5.7	9.9	1.6	4.2	2.5	--	--
All stands	478.2	55.5	10.7	8.6	8.8	10.0	23.8	6.5	21.5	39.2	19.8	93.3	87.9	49.4	43.2
White pine															
Sawtimber	157.6	--	2.5	1.9	7.6	1.7	7.6	1.7	8.8	13.5	11.9	41.2	33.5	16.8	8.9
Poletimber	43.9	--	--	--	--	1.7	2.2	--	5.2	6.0	5.8	13.0	5.4	4.6	--
Sapling & seedling	24.1	5.4	5.1	--	--	2.2	5.7	--	5.7	--	--	--	--	--	--
All stands	225.6	5.4	7.6	1.9	7.6	5.6	15.5	1.7	19.7	19.5	17.7	54.2	38.9	21.4	8.9
Balsam fir															
Sawtimber	116.9	--	--	--	--	8.2	19.7	5.5	10.0	7.3	8.5	21.6	26.8	3.7	5.6
Poletimber	184.4	--	--	1.8	--	3.5	14.6	12.1	7.5	18.7	7.3	36.6	47.8	22.0	12.5
Sapling & seedling	118.1	11.0	10.6	13.7	7.3	13.2	13.8	17.1	17.0	1.9	5.6	3.3	1.9	1.7	--
All stands	419.4	11.0	10.6	15.5	7.3	24.9	48.1	34.7	34.5	27.9	21.4	61.5	76.5	27.4	18.1
White spruce															
Sawtimber	23.0	--	--	--	--	--	--	2.7	--	--	--	--	--	10.3	10.0
Poletimber	20.2	--	--	--	--	--	--	--	--	3.8	2.2	1.7	8.7	3.8	--
Sapling & seedling	18.2	4.2	2.8	1.8	--	3.6	3.6	--	2.2	--	--	--	--	--	--
All stands	61.4	4.2	2.8	1.8	--	3.6	3.6	2.7	2.2	3.8	2.2	1.7	8.7	14.1	10.0
Black spruce															
Sawtimber	7.3	--	1.9	--	--	--	--	3.6	--	--	--	--	1.8	--	--
Poletimber	82.0	--	--	3.6	--	--	9.3	7.5	13.0	8.7	17.5	7.8	12.8	1.8	--
Sapling & seedling	183.7	11.3	11.1	35.7	9.2	40.5	12.7	18.1	20.4	10.8	3.7	5.9	4.3	--	--
All stands	273.0	11.3	13.0	39.3	9.2	40.5	22.0	29.2	33.4	19.5	21.2	13.7	18.9	1.8	--
Northern white-cedar															
Sawtimber	115.3	--	--	--	--	5.3	2.0	5.3	8.6	7.5	3.5	7.6	24.9	24.9	25.7
Poletimber	206.9	--	--	--	--	--	1.8	--	8.9	11.4	1.6	43.1	30.1	61.0	49.0
Sapling & seedling	48.5	1.8	2.9	7.0	2.7	5.3	3.5	--	8.4	2.7	--	8.9	--	5.3	--
All stands	370.7	1.8	2.9	7.0	2.7	10.6	7.3	5.3	25.9	21.6	5.1	59.6	55.0	91.2	74.7

(Table 92 continued on next page)

(Table 92 continued)

Forest type and stand-size class	All classes	Basal area class (square feet per acre)													
		0-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100	101-120	121-150	151-180	181+
Tamarack															
Sawtimber	15.3	--	1.8	4.3	--	1.8	3.7	1.8	--	--	--	1.9	--	--	--
Poletimber	89.0	--	1.9	3.7	2.4	11.5	11.1	15.1	1.9	21.7	8.6	9.3	1.8	--	--
Sapling & seedling	118.4	24.3	11.8	13.4	12.6	15.7	16.6	5.8	11.0	1.8	5.4	--	--	--	--
All stands	222.7	24.3	15.5	21.4	15.0	29.0	31.4	22.7	12.9	23.5	14.0	11.2	1.8	--	--
Oak-hickory															
Sawtimber	1,526.5	--	2.4	15.4	26.8	65.4	86.5	114.3	169.7	214.5	144.2	371.4	247.7	59.3	8.9
Poletimber	841.8	--	--	3.5	7.6	8.6	77.6	47.2	100.4	122.9	109.6	178.3	134.3	46.7	5.1
Sapling & seedling	490.4	52.0	48.1	89.5	60.4	73.3	74.9	26.8	18.9	17.0	11.0	13.1	5.4	--	--
All stands	2,858.7	52.0	50.5	108.4	94.8	147.3	239.0	188.3	289.0	354.4	264.8	562.8	387.4	106.0	14.0
Elm-ash-soft maple															
Sawtimber	415.4	--	4.7	15.0	18.2	20.9	38.6	16.4	30.5	43.9	37.6	71.9	74.6	33.0	10.1
Poletimber	524.8	--	10.1	21.9	23.3	36.1	50.2	37.1	67.6	66.3	37.6	64.5	77.6	28.1	4.4
Sapling & seedling	300.4	31.8	44.3	39.3	42.5	40.0	40.6	17.5	16.7	11.7	9.1	2.4	4.5	--	--
All stands	1,240.6	31.8	59.1	76.2	84.0	97.0	129.4	71.0	114.8	121.9	84.3	138.8	156.7	61.1	14.5
Maple-birch															
Sawtimber	1,543.8	--	--	8.9	7.7	44.9	66.5	61.5	137.2	148.3	128.5	336.0	417.8	151.0	35.5
Poletimber	1,749.4	--	--	4.9	19.0	37.8	77.1	81.6	156.5	244.9	155.2	422.7	386.7	140.1	22.9
Sapling & seedling	703.7	49.5	83.2	87.2	62.5	96.2	91.5	49.8	54.5	46.8	19.6	46.1	11.2	5.6	--
All stands	3,996.9	49.5	83.2	101.0	89.2	178.9	235.1	192.9	348.2	440.0	303.3	804.8	815.7	296.7	58.4
Aspen															
Sawtimber	401.6	--	2.3	7.3	13.1	19.7	33.9	22.7	33.5	56.0	35.1	64.7	88.4	15.4	9.5
Poletimber	1,585.9	--	9.1	29.5	30.7	102.0	142.0	147.7	170.5	227.5	147.6	250.4	241.0	71.4	16.5
Sapling & seedling	1,274.0	176.5	191.2	174.1	142.6	193.0	139.3	82.7	84.6	49.2	20.1	17.1	1.8	1.8	--
All stands	3,261.5	176.5	202.6	210.9	186.4	314.7	315.2	253.1	288.6	332.7	202.8	332.2	331.2	88.6	26.0
Paper birch															
Sawtimber	78.9	--	--	1.8	--	5.6	2.6	10.1	8.7	11.5	3.6	14.5	12.2	5.5	2.8
Poletimber	420.2	--	--	1.9	7.8	18.2	35.2	13.4	35.9	33.6	36.1	82.7	112.2	37.7	5.5
Sapling & seedling	142.5	9.9	22.9	14.6	13.4	23.0	19.8	12.6	5.4	6.1	5.5	7.6	1.7	--	--
All stands	641.6	9.9	22.9	18.3	21.2	46.8	57.6	36.1	50.0	51.2	45.2	104.8	126.1	43.2	8.3
Exotic															
Sawtimber	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Poletimber	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Sapling & seedling	2.2	--	--	--	--	--	--	--	2.2	--	--	--	--	--	--
All stands	2.2	--	--	--	--	--	--	--	2.2	--	--	--	--	--	--
Nonstocked	160.4	78.4	26.4	9.2	9.8	3.5	9.2	4.4	5.6	--	8.8	2.7	2.4	--	--
All types															
Sawtimber	4,654.7	--	15.6	54.6	84.1	179.1	272.8	255.1	427.1	528.0	392.3	994.8	978.3	348.7	124.2
Poletimber	6,223.4	--	21.1	70.8	95.0	232.8	449.6	390.8	627.0	830.1	600.8	1,190.9	1,118.9	441.5	154.1
Sapling & seedling	3,720.9	454.2	451.5	509.6	375.9	531.0	453.9	251.0	292.4	161.7	83.4	108.6	33.3	14.4	--
Nonstocked	160.4	78.4	26.4	9.2	9.8	3.5	9.2	4.4	5.6	--	8.8	2.7	2.4	--	--
All stands	14,759.4	532.6	514.6	644.2	564.8	946.4	1,185.5	901.3	1,352.1	1,519.8	1,085.3	2,297.0	2,132.9	804.6	278.3

Table 93.--Area of timberland by forest type, site-index class, and Forest Survey Unit, Wisconsin, 1983

(In thousand acres)

Forest type	All classes	Site-index class (feet)								
		11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91+
All Units										
Jack pine	546.5	--	1.7	8.2	72.8	174.3	202.9	74.2	10.5	1.9
Red pine	478.2	--	--	8.6	7.6	78.9	161.8	154.3	62.6	4.4
White pine	225.6	--	--	6.4	25.7	61.7	71.1	35.0	23.1	2.6
Balsam fir	419.4	3.2	7.0	46.0	111.7	115.0	103.6	22.1	8.8	2.0
White spruce	61.4	--	--	2.8	11.8	12.1	10.7	24.0	--	--
Black spruce	273.0	--	72.1	96.2	66.1	23.6	11.6	3.4	--	--
Northern white-cedar	370.7	6.9	116.2	97.6	73.8	42.5	29.1	2.7	1.9	--
Tamarack	222.7	--	20.0	46.3	52.6	51.4	42.3	6.0	4.1	--
Oak-hickory	2,858.7	--	--	127.3	392.2	795.2	745.1	513.4	221.8	63.7
Elm-ash-soft maple	1,240.6	--	7.2	75.8	192.2	355.4	300.8	186.6	101.6	21.0
Maple-birch	3,996.9	--	--	40.0	252.2	890.8	1,316.4	994.1	416.3	87.1
Aspen	3,261.5	--	--	19.1	162.4	502.5	955.1	1,099.1	452.0	71.3
Paper birch	641.6	--	--	8.0	48.9	153.0	213.5	141.3	66.6	10.3
Exotic	2.2	--	--	--	--	--	--	2.2	--	--
Nonstocked	160.4	--	3.8	17.4	28.0	46.8	31.2	25.8	4.7	2.7
All types	14,759.4	10.1	228.0	599.7	1,498.0	3,303.2	4,195.2	3,284.2	1,374.0	267.0
Northeast Unit										
Jack pine	81.7	--	1.7	1.6	8.8	23.0	25.7	17.5	3.4	--
Red pine	157.8	--	--	--	3.6	29.3	53.7	51.3	19.9	--
White pine	81.1	--	--	1.7	10.3	19.6	26.7	12.2	10.6	--
Balsam fir	187.9	--	5.3	27.3	44.2	50.4	47.7	11.0	2.0	--
White spruce	19.8	--	--	--	5.4	8.3	--	6.1	--	--
Black spruce	147.5	--	38.3	46.6	37.2	15.2	6.8	3.4	--	--
Northern white-cedar	186.0	3.4	65.9	58.2	24.9	22.7	9.0	--	1.9	--
Tamarack	63.0	--	7.1	18.1	10.8	25.3	1.7	--	--	--
Oak-hickory	149.3	--	--	--	5.3	34.0	39.2	41.7	23.4	5.7
Elm-ash-soft maple	235.9	--	--	24.1	39.5	77.1	58.3	18.6	18.3	--
Maple-birch	1,280.2	--	--	11.3	73.3	255.9	446.1	362.1	114.6	16.9
Aspen	1,026.7	--	--	9.3	58.2	178.7	305.0	343.3	119.5	12.7
Paper birch	191.5	--	--	--	12.5	44.4	77.2	50.0	7.4	--
Exotic	--	--	--	--	--	--	--	--	--	--
Nonstocked	20.1	--	2.0	1.8	5.4	5.6	1.9	3.4	--	--
All types	3,828.5	3.4	120.3	200.0	339.4	789.5	1,099.0	920.6	321.0	35.3
Northwest Unit										
Jack pine	247.8	--	--	1.9	36.9	76.8	104.6	21.0	4.7	1.9
Red pine	132.6	--	--	1.8	1.8	30.3	57.1	33.3	8.3	--
White pine	36.5	--	--	--	3.7	20.3	9.1	--	3.4	--
Balsam fir	219.6	3.2	1.7	18.7	60.4	62.2	53.5	11.1	6.8	2.0
White spruce	31.9	--	--	--	1.7	3.8	10.7	15.7	--	--
Black spruce	111.2	--	33.8	47.2	21.6	3.8	4.8	--	--	--
Northern white-cedar	107.8	3.5	32.8	13.9	36.3	8.5	12.8	--	--	--
Tamarack	111.5	--	12.9	23.7	30.6	14.5	24.5	3.6	1.7	--
Oak-hickory	415.6	--	--	12.6	41.6	136.3	115.7	92.0	17.4	--
Elm-ash-soft maple	414.9	--	1.8	33.1	99.5	140.0	75.2	43.8	21.5	--
Maple-birch	1,478.7	--	--	12.5	88.4	346.4	528.9	356.8	129.4	16.3
Aspen	1,508.3	--	--	4.3	54.1	190.3	437.7	550.0	247.1	24.8
Paper birch	268.8	--	--	5.7	20.2	69.5	91.3	52.3	27.9	1.9
Exotic	--	--	--	--	--	--	--	--	--	--
Nonstocked	65.6	--	1.8	5.6	14.5	18.5	14.4	8.9	1.9	--
All types	5,150.8	6.7	84.8	181.0	511.3	1,121.2	1,540.3	1,188.5	470.1	46.9

(Table 93 continued on next page)

(Table 93 continued)

Forest type	All classes	Site-index class (feet)								
		11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91+
Central Unit										
Jack pine	203.1	--	--	4.7	24.6	63.1	72.6	35.7	2.4	--
Red pine	135.5	--	--	6.8	2.2	19.3	35.9	46.3	20.6	4.4
White pine	77.9	--	--	2.3	11.7	16.4	27.2	13.6	6.7	--
Balsam fir	11.9	--	--	--	7.1	2.4	2.4	--	--	--
White spruce	2.2	--	--	--	2.2	--	--	--	--	--
Black spruce	11.6	--	--	2.4	4.6	4.6	--	--	--	--
Northern white-cedar	23.3	--	6.9	9.4	4.6	--	2.4	--	--	--
Tamarack	39.0	--	--	4.5	11.2	11.6	6.9	2.4	2.4	--
Oak-hickory	937.6	--	--	54.6	131.8	277.5	267.5	123.7	71.3	11.2
Elm-ash-soft maple	271.5	--	--	2.2	23.2	78.8	94.3	47.3	25.7	--
Maple-birch	506.2	--	--	4.8	26.7	118.2	176.1	106.3	60.2	13.9
Aspen	577.5	--	--	--	35.2	122.8	188.2	147.2	60.8	23.3
Paper birch	118.6	--	--	2.3	13.7	25.3	28.7	25.5	20.8	2.3
Exotic	2.2	--	--	--	--	--	--	2.2	--	--
Nonstocked	32.8	--	--	4.5	2.3	11.9	9.2	4.9	--	--
All types	2,950.9	--	6.9	98.5	301.1	751.9	911.4	555.1	270.9	55.1
Southwest Unit										
Jack pine	11.2	--	--	--	2.5	8.7	--	--	--	--
Red pine	40.1	--	--	--	--	--	12.9	13.4	13.8	--
White pine	13.7	--	--	--	--	2.6	5.9	2.6	--	2.6
Balsam fir	--	--	--	--	--	--	--	--	--	--
White spruce	2.5	--	--	--	2.5	--	--	--	--	--
Black spruce	--	--	--	--	--	--	--	--	--	--
Northern white-cedar	--	--	--	--	--	--	--	--	--	--
Tamarack	--	--	--	--	--	--	--	--	--	--
Oak-hickory	1,063.4	--	--	35.6	148.7	272.0	257.9	217.5	89.9	41.8
Elm-ash-soft maple	117.8	--	--	5.3	5.6	25.1	37.1	22.8	13.2	8.7
Maple-birch	497.9	--	--	8.9	51.4	113.5	104.1	116.6	81.1	22.3
Aspen	85.7	--	--	2.7	11.5	2.8	8.2	33.1	19.4	8.0
Paper birch	54.4	--	--	--	--	13.8	10.5	13.5	10.5	6.1
Exotic	--	--	--	--	--	--	--	--	--	--
Nonstocked	33.3	--	--	5.5	2.5	5.5	5.7	8.6	2.8	2.7
All types	1,920.0	--	--	58.0	224.7	444.0	442.3	428.1	230.7	92.2
Southeast Unit										
Jack pine	2.7	--	--	--	--	2.7	--	--	--	--
Red pine	12.2	--	--	--	--	--	2.2	10.0	--	--
White pine	16.4	--	--	2.4	--	2.8	2.2	6.6	2.4	--
Balsam fir	--	--	--	--	--	--	--	--	--	--
White spruce	5.0	--	--	2.8	--	--	--	2.2	--	--
Black spruce	2.7	--	--	--	2.7	--	--	--	--	--
Northern white-cedar	53.6	--	10.6	16.1	8.0	11.3	4.9	2.7	--	--
Tamarack	9.2	--	--	--	--	--	9.2	--	--	--
Oak-hickroy	292.8	--	--	24.5	64.8	75.4	64.8	38.5	19.8	5.0
Elm-ash-soft maple	200.5	--	5.4	11.1	24.4	34.4	35.9	54.1	22.9	12.3
Maple-birch	233.9	--	--	2.5	12.4	56.8	61.2	52.3	31.0	17.7
Aspen	63.3	--	--	2.8	3.4	7.9	16.0	25.5	5.2	2.5
Paper birch	8.3	--	--	--	2.5	--	5.8	--	--	--
Exotic	--	--	--	--	--	--	--	--	--	--
Nonstocked	8.6	--	--	--	3.3	5.3	--	--	--	--
All types	909.2	--	16.0	62.2	121.5	196.6	202.2	191.9	81.3	37.5

Table 94.--Area of timberland by stocking class of growing-stock trees and stand-size class, Wisconsin, 1983

(In thousand acres)

Stocking class (percent)	All stands	Stand-size class			
		Sawtimber stands	Poletimber stands	Sapling and seedling stands	Nonstocked areas
Less than 16.7	160.4	--	--	--	160.4
16.7 to 59.9	2,520.6	984.5	761.7	774.4	--
60.0 to 99.9	6,059.7	1,972.8	2,807.1	1,279.8	--
100.0 to 129.9	4,633.9	1,348.4	2,182.7	1,102.8	--
130.0+	1,384.8	349.0	471.9	563.9	--
All classes	14,759.4	4,654.7	6,223.4	3,720.9	160.4

Table 95.--Area of timberland by stocking class based on selected stand components, Wisconsin, 1983

(In thousand acres)

Stocking class (percent)	Stocking classified in terms of		
	All live trees	Growing-stock trees	Rough and rotten trees
0-10	30.6	54.0	7,344.6
11-20	55.7	155.8	3,762.8
21-30	138.9	357.2	1,873.4
31-40	237.0	487.8	960.1
41-50	364.5	666.2	459.9
51-60	433.2	960.0	208.8
61-70	652.8	1,278.3	103.2
71-80	945.2	1,384.8	17.6
81-90	1,309.4	1,638.1	20.9
91-100	1,824.2	1,758.5	2.1
101-110	1,951.2	1,698.5	4.1
111-120	2,130.5	1,607.3	1.9
121-130	1,954.9	1,328.1	--
131-140	1,454.7	759.0	--
141-150	885.0	413.2	--
151-160	304.4	159.1	--
161+	87.2	53.5	--
All classes	14,759.4	14,759.4	14,759.4

Table 96.--Area of plantations by forest type and stand-age class, Wisconsin, 1983

(In thousand acres)

Forest type	All classes	Stand-age class (years)								
		1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81+
Jack pine	138.5	5.7	26.3	20.1	33.4	24.6	22.0	4.2	2.2	--
Red pine	377.9	52.2	96.7	103.9	71.4	47.5	4.2	2.0	--	--
White pine	55.0	7.6	13.9	5.9	6.3	13.4	3.9	2.3	1.7	--
White spruce	40.5	4.3	11.0	2.0	12.2	4.4	6.6	--	--	--
Black spruce	2.7	--	2.7	--	--	--	--	--	--	--
Exotic	2.2	--	2.2	--	--	--	--	--	--	--
Nonstocked	5.5	5.5	--	--	--	--	--	--	--	--
All types	622.3	75.3	152.8	131.9	123.3	89.9	36.7	8.5	3.9	--

Table 97.--Area of timberland with conifer understory by forest type and conifer understory species, Wisconsin, 1983

(In thousand acres)

Forest type	All species	Conifer understory species									
		White pine	Red pine	Jack pine	Balsam fir	White spruce	Black spruce	Hemlock	Northern white-cedar	Eastern redcedar	Other softwoods
Jack pine	256.4	13.0	45.5	185.4	8.6	--	1.7	--	--	--	2.2
Red pine	177.2	18.3	74.0	8.7	62.9	11.7	1.6	--	--	--	--
White pine	121.3	86.9	1.7	--	30.9	--	--	1.8	--	--	--
Balsam fir	232.4	--	--	--	230.7	--	1.7	--	--	--	--
White spruce	12.0	2.8	--	--	1.7	7.5	--	--	--	--	--
Black spruce	181.3	--	--	--	47.3	--	128.2	--	--	--	5.8
Northern white-cedar	204.9	--	--	--	127.5	2.2	--	--	73.4	--	1.8
Tamarack	159.1	--	--	--	31.5	--	40.9	--	6.1	--	80.6
Oak-hickory	429.6	153.6	30.5	141.4	32.1	2.2	--	3.5	2.7	59.0	4.6
Elm-ash-soft maple	274.2	22.4	--	--	196.3	4.6	6.6	10.0	29.7	2.8	1.8
Maple-birch	879.2	122.8	15.4	11.0	582.8	27.6	1.9	87.0	8.5	18.2	4.0
Aspen	860.7	137.2	28.3	38.9	583.5	20.5	30.9	5.9	7.5	2.5	5.5
Paper birch	153.4	17.4	4.0	--	106.7	3.3	5.8	1.8	9.3	2.8	2.3
Exotic	2.2	--	--	--	--	2.2	--	--	--	--	--
Nonstocked	18.0	5.5	4.6	--	5.4	--	--	--	--	2.5	--
All types	3,961.9	579.9	204.0	385.4	2,047.9	81.8	219.3	110.0	137.2	87.8	108.6

Table 98.--Area of timberland by class of water and distance to water, Wisconsin, 1983

(In thousand acres)

Class of water and width or size	All distances	Distance to water (miles)						
		0-.125	.125-.25	.25-1.0	1.0-2.5	2.5-5.0	5.0-10.0	10.0+
Streams								
1-16 feet	816.6	395.9	121.7	233.3	63.2	2.5	--	--
17-33 feet	3,867.3	1,337.1	774.1	1,545.7	196.4	12.0	2.0	--
34-66 feet	1,452.3	391.3	250.1	655.4	131.5	24.0	--	--
67+ feet	943.2	279.1	142.7	373.8	123.1	21.8	2.7	--
All widths	7,079.4	2,403.4	1,288.6	2,808.2	514.2	60.3	4.7	--
Lakes								
1-25 acres	1,584.2	338.0	295.3	722.4	178.5	48.1	1.9	--
26-100 acres	623.4	137.8	88.5	327.0	59.8	10.3	--	--
101-500 acres	374.7	88.6	69.0	173.7	37.1	6.3	--	--
501+ acres	461.7	81.8	54.8	175.9	115.6	30.9	2.7	--
All sizes	3,044.0	646.2	507.6	1,399.0	391.0	95.6	4.6	--
Swamps								
1-10 acres	1,505.8	883.1	277.8	286.0	29.3	29.6	--	--
11-25 acres	540.1	340.8	109.5	83.4	4.0	2.4	--	--
26-100 acres	1,287.5	794.6	220.0	250.5	22.4	--	--	--
101+ acres	762.2	552.9	110.0	95.8	3.5	--	--	--
All sizes	4,095.6	2,571.4	717.3	715.7	59.2	32.0	--	--
Farm ponds								
1-2 acres	397.6	90.9	64.0	215.3	27.4	--	--	--
3-5 acres	83.4	12.2	13.4	45.5	12.3	--	--	--
6+ acres	59.4	14.5	4.0	26.0	7.4	7.5	--	--
All sizes	540.4	117.6	81.4	286.8	47.1	7.5	--	--
All widths and sizes	14,759.4	5,738.6	2,594.9	5,209.7	1,011.5	195.4	9.3	--

Table 99.--Area of timberland by Forest Survey Unit, distance to maintained road, and type of road, Wisconsin, 1983

(In thousand acres)

Type of road and distance to road (miles)	All Units	Forest Survey Unit				
		Northeast	Northwest	Central	Southwest	Southeast
Paved-4 lane						
0-.125	53.5	5.1	15.9	9.1	2.5	20.9
.125-.25	36.5	5.1	11.5	4.5	2.5	12.9
.25-1.0	64.6	14.2	28.7	11.4	2.9	7.4
1.0-2.5	2.5	--	--	--	--	2.5
2.5-5.0	--	--	--	--	--	--
5+	--	--	--	--	--	--
Total	157.1	24.4	56.1	25.0	7.9	43.7
Paved-2 lane						
0-.125	1,476.1	394.1	296.9	428.2	212.2	144.7
.125-.25	1,368.4	256.7	300.8	420.2	230.7	160.0
.25-1.0	2,760.8	744.5	704.3	655.3	418.2	238.5
1.0-2.5	143.9	63.0	59.5	11.5	5.3	4.6
2.5-5.0	--	--	--	--	--	--
5+	--	--	--	--	--	--
Total	5,749.2	1,458.3	1,361.5	1,515.2	866.4	547.8
Improved-gravel						
0-.125	2,502.4	712.4	955.5	440.2	282.9	111.4
.125-.25	1,871.4	451.2	723.7	348.2	292.3	56.0
.25-1.0	4,133.8	1,038.8	1,868.3	605.9	470.5	150.3
1.0-2.5	335.1	136.5	182.2	16.4	--	--
2.5-5.0	7.1	3.6	3.5	--	--	--
5+	--	--	--	--	--	--
Total	8,849.8	2,342.5	3,733.2	1,410.7	1,045.7	317.7
All types of road						
0-.125	4,035.3	1,114.9	1,268.3	877.5	497.6	277.0
.125-.25	3,276.3	713.0	1,036.0	772.9	525.5	228.9
.25-1.0	6,959.2	1,797.5	2,601.3	1,272.6	891.6	396.2
1.0-2.5	481.5	199.5	241.7	27.9	5.3	7.1
2.5-5.0	7.1	3.6	3.5	--	--	--
5+	--	--	--	--	--	--
Total	14,759.4	3,828.5	5,150.8	2,950.9	1,920.0	909.2

Table 100.--Area of timberland by Forest Survey Unit, posting, and setting class, Wisconsin, 1983

(In thousand acres)

Unit and posting	All classes	Setting class					
		Primitive	Semi-primitive nonmotor	Semi-primitive motor	Roaded natural	Rural	Urban
Northeast							
Not posted	3,170.4	3.5	87.1	688.3	1,988.0	392.7	10.8
Locked gate	127.6	--	1.9	28.1	90.4	5.5	1.7
No trespassing	274.6	1.8	1.7	40.6	159.1	69.7	1.7
No hunting	14.4	--	--	3.6	3.7	7.1	--
Other posted signs	34.7	--	--	8.9	22.2	3.6	--
Other evidence	206.8	--	3.5	10.3	84.7	108.3	--
Total	3,828.5	5.3	94.2	779.8	2,348.1	586.9	14.2
Northwest							
Not posted	4,536.1	5.6	252.7	873.7	2,606.3	778.9	18.9
Locked gate	69.1	--	2.6	26.1	36.7	3.7	--
No trespassing	329.4	--	18.6	52.2	164.3	94.3	--
No hunting	29.9	--	--	--	21.9	8.0	--
Other posted signs	40.8	--	4.1	5.4	22.0	9.3	--
Other evidence	145.5	--	2.0	--	47.4	96.1	--
Total	5,150.8	5.6	280.0	957.4	2,898.6	990.3	18.9
Central							
Not posted	1,995.6	2.4	36.6	121.5	1,198.6	631.9	4.6
Locked gate	66.8	--	--	25.3	20.4	21.1	--
No trespassing	480.4	--	4.5	23.5	331.7	120.7	--
No hunting	41.4	--	--	--	36.8	4.6	--
Other posted signs	39.9	--	--	4.2	24.4	11.3	--
Other evidence	326.8	--	--	4.8	127.2	194.8	--
Total	2,950.9	2.4	41.1	179.3	1,739.1	984.4	4.6
Southwest							
Not posted	1,308.9	--	2.8	10.8	329.2	960.0	6.1
Locked gate	54.6	--	--	2.6	16.0	36.0	--
No trespassing	160.1	--	--	8.3	71.6	80.2	--
No hunting	8.7	--	2.8	--	5.9	--	--
Other posted signs	11.2	--	--	--	11.2	--	--
Other evidence	376.5	--	--	11.5	94.2	270.8	--
Total	1,920.0	--	5.6	33.2	528.1	1,347.0	6.1
Southeast							
Not posted	573.3	3.0	13.0	80.6	236.1	230.0	10.6
Locked gate	2.2	--	--	--	--	2.2	--
No trespassing	126.6	--	--	--	52.9	66.2	7.5
No hunting	5.4	--	--	--	2.7	2.7	--
Other posted signs	18.7	--	--	2.5	2.7	13.5	--
Other evidence	183.0	--	--	--	40.7	139.1	3.2
Total	909.2	3.0	13.0	83.1	335.1	453.7	21.3
All Units							
Not posted	11,584.3	14.5	392.2	1,774.9	6,358.2	2,993.5	51.0
Locked gate	320.3	--	4.5	82.1	163.5	68.5	1.7
No trespassing	1,371.1	1.8	24.8	124.6	779.6	431.1	9.2
No hunting	99.8	--	2.8	3.6	71.0	22.4	--
Other posted signs	145.3	--	4.1	21.0	82.5	37.7	--
Other evidence	1,238.6	--	5.5	26.6	394.2	809.1	3.2
Total	14,759.4	16.3	433.9	2,032.8	7,849.0	4,362.3	65.1

Table 101.--Area of woodland and reserved timberland by ownership class, Wisconsin, 1983

(In thousand acres)

Ownership class	All areas	Woodland	Reserved timberland
National Forest	147.4	94.9	52.5[1/]
Miscellaneous federal	54.9	2.3	52.6
State	137.8	31.9	105.9
County and municipal	60.4	44.9	15.5
Indian	3.8	2.2	1.6
Forest industry	17.5	17.5	--
Farmer	59.8	52.5	7.3
Misc. private-corp.	14.2	5.4	8.8
Misc. private-indiv.	96.1	79.4	16.7
Total	591.9	331.0	260.9

[1/] Includes 33.8 thousand acres of deferred timberland.

Table 102.--Area of woodland and reserved timberland by forest type, Wisconsin, 1983

(In thousand acres)

Forest type	All areas	Woodland	Reserved[1/] timberland
Jack pine	4.6	2.0	2.6
Red pine	17.1	--	17.1
White pine	2.7	--	2.7
Balsam fir	14.9	14.0	0.9
White spruce	1.8	--	1.8
Black spruce	190.5	183.6	6.9
Northern white-cedar	20.7	17.2	3.5
Tamarack	20.5	20.5	--
Oak-hickory	33.1	4.3	28.8
Elm-ash-soft maple	105.9	67.3	38.6
Maple-birch	77.1	2.5	74.6
Aspen	77.7	5.7	72.0
Paper birch	3.5	2.3	1.2
Exotic	10.2	--	10.2
Nonstocked	11.6	11.6	--
All types	591.9	331.0	260.9

[1/] Includes 33.8 thousand acres of deferred timberland.

Table 103.--Area of nonforest land with trees by forest type and land use, Wisconsin 1983

(In thousand acres)

Forest type	All uses	Land use							
		Cropland	Improved pasture	Wooded strips	Idle farmland	Marsh	Wind-breaks	Urban and other[1/]	Wooded pasture
Jack pine	14.2	--	4.7	--	4.4	5.1	--	--	--
Red pine	8.5	--	1.3	2.3	--	--	4.9	--	--
White pine	10.3	--	2.3	2.2	--	5.8	--	--	--
Balsam fir	7.3	--	--	--	--	7.3	--	--	--
White spruce	2.0	--	--	--	2.0	--	--	--	--
Black spruce	9.5	--	--	1.8	--	7.7	--	--	--
Northern white-cedar	1.2	--	1.2	--	--	--	--	--	--
Tamarack	30.6	--	--	--	4.2	26.4	--	--	--
Oak-hickory	213.9	16.4	103.2	12.4	21.0	8.4	15.7	--	36.8
Elm-ash-soft maple	269.1	9.2	67.7	9.4	21.7	140.8	4.2	--	16.1
Maple-birch	200.9	16.5	80.7	8.8	21.7	11.5	11.6	--	50.1
Aspen	165.2	6.9	39.2	8.1	33.4	68.0	4.4	--	5.2
Paper birch	28.6	--	--	--	--	24.7	--	--	3.9
Exotic	2.4	--	--	--	--	2.4	--	--	--
Nonstocked	33.7	5.1	22.0	--	2.1	4.5	--	--	--
Not typed	244.3	--	--	--	--	--	--	244.3	--
All types	1,241.7	54.1	322.3	45.0	110.5	312.6	40.8	244.3	112.1

[1/] Forest type was not recorded on plots classified as urban and other land with trees.

Table 104.--Sampling errors[1/] for estimates smaller than the State totals of volume, net growth, removals, and area of timberland, Wisconsin, 1983

Sampling error	Timberland	Growing stock			Sawtimber		
		Inventory	Growth	Removals	Inventory	Growth	Removals
Percent	Thousand acres	Million cubic feet			Million board feet[2/]		
1	744.0	17,213.0	1,392.4	29,033.7	88,627.4	8,171.1	104,159.6
2	186.0	4,303.2	348.1	7,258.4	22,156.9	2,042.8	26,039.9
3	82.7	1,912.6	154.7	3,226.0	9,847.5	907.9	11,573.3
4	46.5	1,075.8	87.0	1,814.6	5,539.2	510.7	6,510.0
5	29.8	688.5	55.7	1,161.3	3,545.1	326.8	4,166.4
10	7.4	172.1	13.9	290.3	886.3	81.7	1,041.6
15	3.3	76.5	6.2	129.0	393.9	36.3	462.9
20	1.9	43.0	3.5	72.6	221.6	20.4	260.4
25	1.2	27.5	2.2	46.5	141.8	13.1	166.7
50	0.3	6.9	0.6	11.6	35.5	3.3	41.7
100	0.1	1.7	0.1	2.9	8.9	0.8	10.4

[1/] At the 68-percent probability level.

[2/] International 1/4-inch rule.

Spencer, John S., Jr.; Smith, W. Brad; Hahn, Jerold T.; Raile, Gerhard K. 1988.

Wisconsin's fourth forest inventory, 1983. Resour. Bull. NC-107. St. Paul, MN: U.S. Department of Agriculture, Forest Service, North Central Forest Experiment Station 158 p.

The fourth inventory of the timber resource of Wisconsin shows that growing-stock volume increased from 11.2 to 15.5 billion cubic feet between 1968 and 1983, and area of timberland increased from 14.5 to 14.8 million acres. Presented are analysis and statistics on forest area and timber volume, growth, mortality, removals, and projections.

KEY WORDS: Timber resource, statistics, area, volume, growth, mortality, removals.

FINDING OUT AND TELLING

Our job at the North Central Forest Experiment Station is discovering and creating new knowledge and technology in the field of natural resources and conveying this information to the people who can use it--in short, "finding out and telling." As a new generation of forests emerges in our region, managers are confronted with two unique challenges: (1) Dealing with the great diversity in composition, quality, and ownership of the forests, and (2) Reconciling the conflicting demands of the people who use them. Helping the forest manager to meet these challenges while protecting the environment is what research at North Central is all about.

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